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Model Curriculum for Training Tractor-Trailer Drivers

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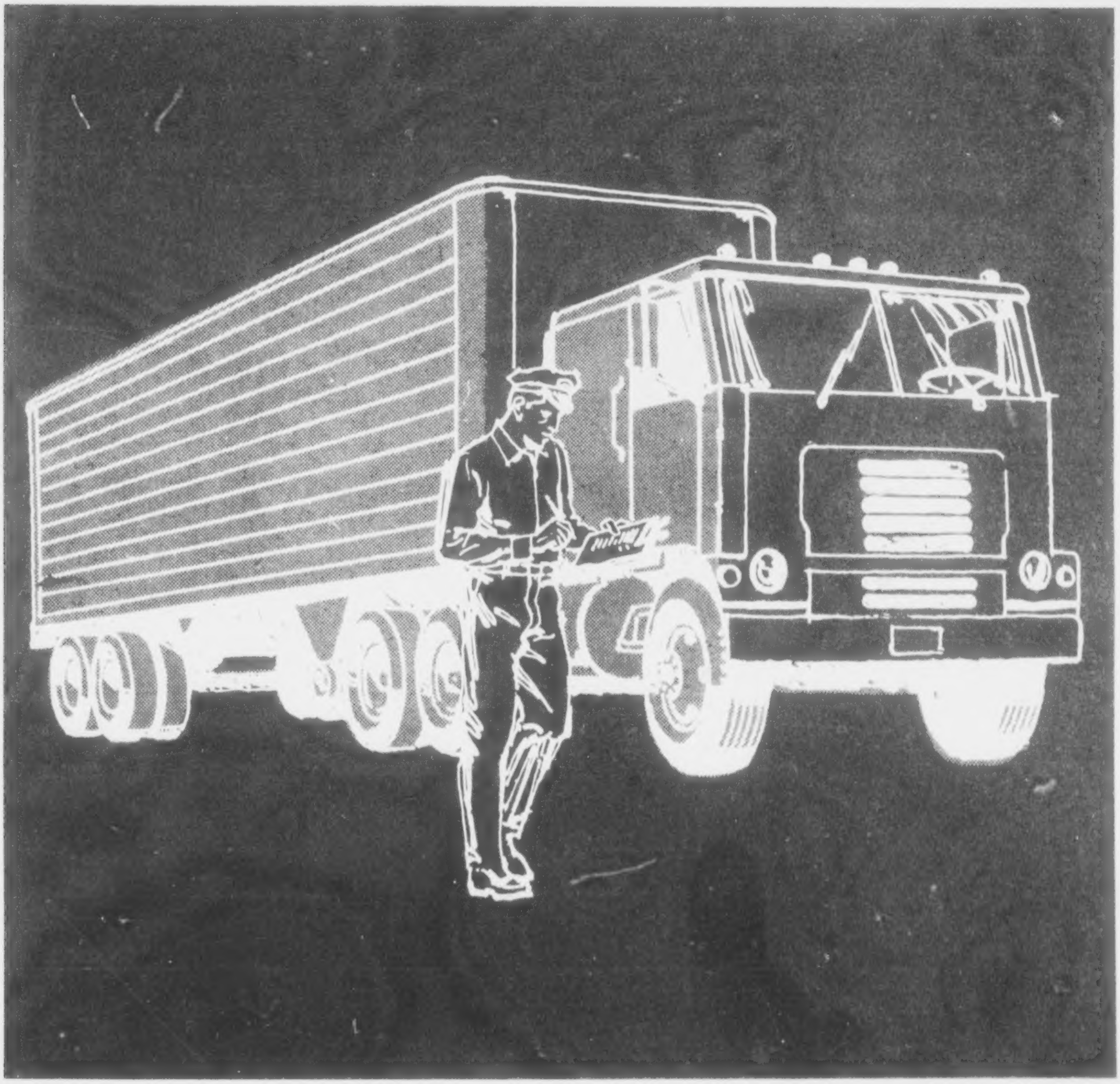
Instructor's Manual

Part Three



U.S. Department of Transportation
Federal Highway Administration

TD 2.308:

Model Curriculum for Training Tractor-Trailer Drivers

Bureau of Motor Carrier Safety

1985

Instructor's Manual
Part Three

U.S. Department
of Transportation
**Federal Highway
Administration**

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PREVENTIVE MAINTENANCE
AND SERVICING

UNIT 4.2 PREVENTIVE MAINTENANCE AND SERVICING

PURPOSE

The purpose of this unit is to introduce students to the basic servicing and checking procedures for various engine and vehicle components, and to help develop their ability to perform preventive maintenance and simple emergency repairs.

OBJECTIVES

Performance Objectives

Students must be able to

- check and service engine fuel, oil, coolant, battery, and filters involved.
- perform simple repairs to enable a vehicle to reach a maintenance facility.
- check tire air pressure.
- change wheels (with tires mounted) and check for proper tire and wheel mounting.
- drain moisture from air brake supply reservoirs and fuel system.
- check and adjust brakes.
- clean and repair lights.
- change fuses and reset circuit breakers.

Knowledge Objectives

Students must know

- the procedures for performing inspections and authorized maintenance and repairs.
- enough to avoid attempting repairs for which they are unqualified.
- the importance of periodic inspection and repair to prevention of enroute breakdowns, long life of parts, safety, and economy of operation.
- the inspection, repair and maintenance requirements of the Federal Motor Carrier Safety Regulations.

Skill Objectives

None

Attitude Objectives

Students must believe that

- preventive maintenance and repair will prevent enroute breakdowns and ensure long life of parts, safety, and economy of operation.
- it is the driver's responsibility to assure that the vehicle is in safe, economical operating condition.

LESSONS

Lesson 1.	**Nature and Importance of Preventive Maintenance (Classroom)**	**1 hours 15 minut**
Lesson 2.	**Engine Fluids, Filters, Lights and Fuses (Lab)**	**3 hours 30 minut**
Lesson 3.	**Changing Tires and Checking Tire Air Pressure (Lab)**	**2 hours**
Lesson 4.	**Air Reservoir Drainage and Brake Adjustment (Lab)**	**2 hours**

LESSON 1 NATURE AND IMPORTANCE OF PREVENTIVE MAINTENANCE (CLASSROOM)

Overview

Time Allotted: 1 hour 15 minutes

Prerequisites: Unit 4.1

Purpose:

The purpose of this lesson is to acquaint students with the importance of preventive maintenance and servicing in preventing breakdowns, increasing the life of the vehicle components, and improving the safety and economy of operation.

Materials

Instructional Aids

Visuals 1 - 3

Student Material

Preventive maintenance checklists, in Unit 4.2 of Student Manual

Instructor Material

Preventive maintenance checklists (at end of this lesson)

Sample preventive maintenance forms collected from fleets, plus samples of maintenance forms used by your school

Content

Activity or Topic	Approximate Time
1. Overview of Maintenance	5 minutes
2. Types of Maintenance	5 minutes
3. Federal Motor Vehicle Inspection and Maintenance Requirements	30 minutes
4. Importance of Preventive Maintenance	35 minutes
	1 hour 15 minutes

1. OVERVIEW OF MAINTENANCE (5 minutes)

Fleet-Performed Maintenance

In many fleets, even the most routine maintenance may be performed by the fleet's maintece department, the dealer, an independent garage, or a truck leasing company.

Driver-Performed Maintenance

In some fleets drivers are required to perform basic or routine preventive maintenance and servicing tasks as part of their jobs.

- Motor carriers
    - Some require drivers to perform
    - Some prohibit drivers from performing it
- Independent owner-operator
    - Some perform many levels of preventive maintenance themselves
    - Some have it done by an independent garage or dealer

Visual 1 Types of Maintenance

2. TYPES OF MAINTENANCE (5 Minutes)

Maintenance is divided into three types.

- Routine servicing
- Scheduled preventive maintenance
- Unscheduled maintenance/repair

Routine Servicing

This type of servicing is frequently handled by drivers.

- Adding fuel, oil, coolant
- Draining air reservoirs and fuel system

Scheduled Preventive Maintenance

Most fleets have a regular preventive maintenance schedule, based upon time and/or mileage since last scheduled maintenance, often set up under four levels.

- Level A
    - Grease job
    - Oil change
    - Filter change (oil, coolant, fuel, lube)

- Level B
    - Includes all of type A
    - Adds inspection and maintenance of certain key components (e.g., lubricating water pump shaft)

Level C
- Includes all of A and B
- Engine tuneup
- Detailed inspection and maintenance of all major components
- Road test

Level D
- Complete engine overhaul
- Rebuilding components, e.g., fuel pump, alternator

Unscheduled Maintenance

Refers to unexpected repair which become necessary.

- breakdowns on the road
- driver pre-trip and post-trip inspection reports
- repair of accident damage.

FEDERAL MOTOR VEHICLE INSPECTION AND MAINTENANCE REQUIREMENTS (30 minutes)

Parts 392 and 396 of the FMCSR requires that all drivers learn the regulations and obecy them.

Requirements

Visual 2 Driver Reporting Requirements

The FMCSR requires drivers to
- perform a pre-trip inspection prior to operating a vehicle to satisfy himself that it is in safe operating condition (see Unit 1.3).
- review the last daily vehicle inspection report (required to be carried on the power unit).
- sign that report to acknowledge that he/she has reviewed it.
  - signature also acknowledges that there is a mechanics certification that required repairs have been made.
- perform enroute type inspections (see section 392.9) after the vehicle has been driven for 3 hours or 150 miles - whichever occurs first.

NOTE: If transporting hazardous materials, see Part 397 for additional requirements

Perform post-trip inspections covering the following items:
- Service brakes
- Parking brakes
- Steering mechanism
- Lighting devices and reflectors
- Tires
- Horn
- Windshield wipers
- Rear vision mirrors
- Coupling devices
- Wheels and rims
- Emergency equipment

Visual 3 Daily Vehicle Condition Report

Results of the post-trip inspection have to be entered on an official "Daily Vehicle Condition Report" (DVCR) form - if no defects discovered, the report still has to be completed to indicate this fact
Driver must make a factual and properly accurate report of his findings, then sign and date the report and give report to his supervisor.
Drivers must complete a report each day for each and every vehicle driven - this is law.
Drivers must report facts fully and accurately to aid mechanics.
Help the mechanics to help you - give complete and accurate reports.
For student practice give out blank DVCR's and then describe a situation or defect and have the students enter it on their practice forms.
For additional practice last student to drive a school vehicle each day should complete a DVCR on it.

4. IMPORTANCE OF PREVENTIVE MAINTENANCE (35 minutes)

Failure to perform preventive maintenance increases cost

Breakdown Costs

Breakdowns on the road entail the following costs:

- Transfer of cargo and delay of delivery
- Expensive road services
  - Towing
  - Out of town repair
- Driver costs
  - Salary while not driving
  - Living expenses

Maintenance Costs

Costs more to repair or replace a part than prevent failure
Unscheduled maintenance disrupts the schedule of preventive maintenance for other vehicles and components

Operating Costs

Vehicles with poor maintenance typically cost more to operate

- Fuel costs, e.g., poorly tuned engine has lower mpg
- Longer trip times

Onroad breakdowns occasionally result in accidents

- Costs of repairing damage
- Lost work time
- Medical expenses
- Increase in company insurance costs

Purpose of Unit

This unit is designed to enable drivers to understand and/or to perform basic servicing and routine maintenance.

Unit will include the following:

Inspecting and changing lights and fuses
Changing a tire
Draining moisture from air reservoir and fuel system
Roadside (emergency) adjustment of brakes

Why learn this if you are going to be employed by a fleet that has a policy of not allowing drivers to do any servicing and/or adjustments to vehicles? A few good reasons are

First, you don't know where you may be employed or under what company rules.

If a mechanic is adjusting your brakes and is doing it wrong, you had better be able to recognize the error or else you could be involved in an accident.

When your rig has a breakdown at 2 o'clock in the morning and it's 10° below zero outside and you are 15 miles from the nearest telephone, you will be glad to have some basic mechanical knowledge.

As a professional driver you need to know as much about your vehicle and its components as possible so that you can at least detect (if not correct) systems or parts that are in imminent danger of failing, have already failed and/or are missing as discovered during your vehicle inspections. You must be able and willing to do this because of your moral, ethical and legal obligations as a professional driver to operate your vehicle as safely and as economically as possible at all times. There is no excuse for operating a vehicle with safety defects or operating it in such a way as to cause premature wear and tear to components.

Summary And Lab Lessons Preparation

Drawing from your own experience describe various fleet maintenance practices showing both good and bad practices.

Have students briefly discuss the implications of safety and economy regarding these described situations.

Ask students to describe their own experiences. Possibly they can only describe circumstances concerning their personal vehicles.

Briefly review the nine checklists for maintenance and servicing (have student follow along on copies in student manual).

Describe the three lab lessons to follow and review lab session safety rules.

Notes:

UNIT 4.2 - CHECKLIST NUMBER 1

CHECKING FUEL TANK, FUEL LEVEL AND CHANGING FUEL FILTERS

Fuel Tanks

1. Open drain cocks on bottom of tanks and drain off any water present
2. Tighten all fuel tank mountings and brackets
3. Check seal in fuel tank cap and check breather hole

Fuel Level

1. Park vehicle on level ground
2. Open fuel tank cap
3. Visually check fuel level
4. Make sure level corresponds with gauge reading in cab

Changing Filters

Strainer Replacement

1. Turn fuel filter element counterclockwise unit it is free of base
2. Discard filter element
3. Clean seal surface on filter base
4. Wipe up fuel that was spilled during filter removal
5. Coat seal of new filter with clean diesel fuel or engine oil
6. Thread filter onto base until seal contacts base
7. Tighten filter on additional 1/2 turn
8. Start engine and check for leaks

Filter Replacement

1. Turn off fuel supply from fuel tanks
2. Place a suitable container under filter
3. Open drain cock in filter housing base and drain
4. Remove filter body (with element)
5. Discard filter element
6. Clean housing and close drain cock
7. Install new filter in housing
8. Fill housing with clean fuel
9. Install filter housing (containing new filter element) with a new gasket (lubricate with fuel or engine oil) and tighten
10. Open fuel line shut off valve
11. Start engine
12. Check for leaks

UNIT 4.2 - CHECKLIST NUMBER 2

CHECKING ENGINE OIL LEVEL AND CHANGING OIL FILTERS

Oil Level

1. Park vehicle on level ground, shut engine off (allow a few minutes for oil to drain down before checking)
2. Locate dipstick
3. Pull stick out, wipe clean and replace
4. Pull out again, check oil level
5. Level should be maintained between the full and add marks (Do not overfill or operate vehicle when oil level is below add mark)

Changing Filter

1. Remove drain plug from bottom of filter housing, drain oil
2. Remove filter housing containing filter element (consult manufacturer's owner guides for specific instructions on removal of filter elements)
3. Discard filter
4. Clean housing and cover
5. Replace with new filter element, secure housing
6. Replace drain plug
7. Start engine, check for leaks
8. Shut engine down, wait 10 minutes
9. Check oil level (add sufficient oil to bring it to proper level on dip stick)

UNIT 4.2 - CHECKLIST NUMBER 3

CHECKING COOLANT LEVEL AND CHANGING COOLANT FILTERS

Coolant Level

Preparation

1. Shut engine off (never check when running)
2. Wait until engine has cooled
3. Even then use extreme care when removing radiator cap
4. Protect hands (gloves, thick cloth)

Removing radiator cap

1. Turn cap slowly to the first stop
2. Step back while pressure is released from cooling system
3. When all pressure has been released, press down on the cap and remove it

Checking coolant level

1. Visually check level of coolant, add if necessary (consult operators's manual for specific instruction for your particular vehicle)
2. Some vehicles have sight glasses or see through overflow containers for checking coolant level.

Changing Coolant Filters

Preparation

1. Shut engine off
2. Wait until engine has cooled
3. Do not handle hot filter with bare hands (gloves, thick cloth)

Removing filter

1. Turn filter element counter clockwise and remove
2. Replace with new filter element and new cover gasket
3. Start engine, check for leaks

UNIT 4.2 - CHECKLIST NUMBER 4

CHECKING BATTERY FLUID AND POWER STEERING LEVEL

Precautions

1. Caution: Batteries contain acid which will cause severe burns if contacted with skin
2. Batteries give off explosive gases--no smoking
3. Protect eyes with goggles or glasses

Checking Fluid Level

1. Open battery caps, check fluid level (not necessary with maintenance free batteries)
2. Fill if needed--bring level to bottom of split ring in cell filler well (Add distilled water if possible, never use acid)

CHECKING, POWER STEERING FLUID LEVEL

Preparation

With engine running at normal operating temperature, turn steering wheel back and forth several times to stabilize fluid level

Checking Fluid Level

1. Stop engine
2. Remove dipstick
3. Fluid should register between bottom of dipstick and full mark
4. Add if necessary, bring level to full mark, do not overfill (Consult manufacturer's specification in owner's manual for correct type of fluid)

UNIT 4.2 - CHECKLIST NUMBER 5

CHANGING AIR FILTER ELEMENT

CHANGING AIR FILTER ELEMENTS--DRY AIR CLEANERS

On air cleaners with a restrictions indicator, change or clean element when indicator shows red

On vehicles equipped with an air filter restriction gauge, replace element when gauge reads 25" for Cummins and Caterpillar engines and 20" for Detroit Diesel engines

Steps

1. Remove end covering from housing
2. Remove filter element (do not handle with greasy hands)
3. Inspect end cover and gasket surfaces for dents or possible air leaks
4. Check outlet tube (should be clean and undamaged)
5. Check filter element for holes and tears (replace if damaged)
6. If filter is undamaged, it may be cleaned by using compressed air (always blow air in opposite direction of normal air cleaner flow)
7. Wipe out any dirt in the filter housing
8. Install filter element
9. Replace end cover and secure

NOTE: Always handle filter element carefully to prevent dirt from shaking loose onto clean side of system.

UNIT 4.2 - CHECKLIST NUMBER 6

CHANGING HEADLAMP, FUSES AND RESETTING CIRCUIT BREAKERS

A supply of smaller lights as well as sealed beam headlamps, fuses and wire should be carried with the vehicle

Steps

1. Park vehicle, shut off and secure
2. Remove trim ring from burned out light
3. Unfasten mounting screws
4. Disconnect light from socket and remove
5. Remove any dirt or bugs from socket area
6. Replace with new headlamp (plug it in)
7. Test lamp to see if its working properly
8. Fasten mounting screws
9. Replace trim ring
10. Make sure new light is clean

NOTE: Do not touch headlamp adjusting screws!

CHANGING FUSES AND RESETTING CIRCUIT BREAKERS

Fuses

Always use right size and amp fuse (new fuse should have the same amp rating as the fuse it replaces)

Steps

1. Check the fuse and clip holder for cleanliness and burrs
2. If dirty, touch up the contact points with a coarse cloth
3. Gently but firmly snap new fuse into clip holder (make sure there is a good connection between fuse ends and clip holder)

Circuit Breakers

1. Remove circuit breaker cover panel
2. Flip the circuit breaker switch back in the opposite direction to reset
3. Replace panel

UNIT 4.2 - CHECKLIST NUMBER 7

DRAINING MOISTURE FROM AIR AND FUEL SYSTEM

1. Place vehicle on level ground
2. Chock wheels
3. Open drain cocks by twisting valve on bottom of tank
4. Allow all air pressure to escape (0 psi)--this will permit moisture to drain
5. Close valve

DRAINING MOISTURE FROM FUEL SYSTEM

1. Locate filter with water separator
2. Remove drain plug at bottom of filter
3. Allow water to drain
4. Replace drain plug

UNIT 4.2 - CHECKLIST NUMBER 8

ADJUSTING TRACTOR-TRAILER BRAKES (Simplified illustration only--not intended for actual use--see footnote below)

Drum Brakes (S-cam)

Preparation

1. Chock wheels
2. Clean adjusting area
3. Press down on lock collar
4. Turn adjusting screw until shoes make contact with the drum
5. Visually check to see that contact was made

The adjusting screw is being turned the wrong way if
    The screw turns more than two full turns
    The push rod starts to pull out of the chamber

Adjustment

1. Back screw off 1/2 turn
2. Measure push rod travel
    - With air pressure
        - Have someone apply pressure (100 psi)
        - Push rod should travel between 1 and 1-1/2 inches
    - With a prybar
        - If alone pull out push rod with a prybar
        - Pushrod should travel between 1/2 and 3/4 inches

Disc Brakes (Power Screw)

Preparation

1. Chock wheels
2. Clean adjusting area
3. Turn adjusting nut until brake linings contact disk
4. Check visually to see that contact was made

Adjustment

1. After linings contact disk, back screw off one complete turn

2. Road test (this type adjustment will provide a slightly increased stroke and will necessitate more frequent adjustments)

Note: This is a simplified illustration of brake adjustment procedures. Remember, brake adjustments should be performed only by a trained driver, following maintenance manual procedures and then only to enable the driver to move vehicle to a point where service by a qualified mechanic is available.

Notes:

Notes:

UNIT 4.2 - CHECKLIST NUMBER 9

CHECKING TIRE INFLATION AND CHANGING TIRES

CHECKING TIRE INFLATION PRESSURE

1. Remove valve stem cap
2. Place air gauge over valve stem opening
3. Read inflation pressure (inflate if necessary)
4. Replace cap
5. Check operators manual or read correct inflation pressure for tire on its side wall
6. Replace cap

NOTE: Never check air pressure when tires are cold, hot readings are incorrect.

CHANGING A WHEEL/TIRE ASSEMBLY

Secure Vehicle

1. Park vehicle on level ground
2. Chock other wheels fully against vehicle movement
3. Set parking brakes and place transmission in lowest forward gear

Inspect Tire

1. Check for over inflation
2. Compare appearance of tire with that of other tires
3. Check side and lock rings
4. On duals, also check seating of inner tire
5. If inflation or seating does not appear normal, avoid attempting tire change, obtain expert help

Place Jack

1. Refer to owners manual to determine proper placement of jack for removing the tire to be changed
2. Place hardwood plank or block under base of jack regardless of surface

Unit 4.2 - Checklist Number 9 (cont'd)

Remove Wheel/Tire Assembly

1. Loosen stud nuts

2. Observe direction of rotation
    Examine thread
    On some wheels, direction indicated on end of stud
        "R" means to right (clockwise)
        "L" means to left (counter-clockwise)

3. Stand to one side of tire. Portions of wheel assembly may fly outward and cause injury when stud bolts are loosened

4. Turn stud nuts by hand until they are flush with the end of the stud

5. Loosen clamp (on cast-type wheels)

6. Tap with hammer
    Don't remove stud nuts until clamp is free
    Clamp could fly off studs

7. Remove air lines from any wheels with a tire pressure sensing device, and cap the line and actuator

8. Raise vehicle
    Jack up vehicle to allow tire to clear the surface
    Stand clear of vehicle while raising jack
        Vehicle could slip off jack and cause severe injury if arms, legs, or head are under the vehicle

9. Remove the wheel assembly
    Remove stud nuts
    Pull off wheel assembly

10. Remove inside wheel of a dual wheel assembly following the same procedure

Notes:

Notes:

Unit 4.2 - Checklist Number 9 (cont'd)

Replace Wheels

1. Replace inside duals first

2. Mount wheel
    - Place wheel on hub
    - Install rim clamp (cast-type wheel)
    - Install stud nuts
    - Tighten nuts properly

3. Follow prescribed pattern
    - Consult owners manual for proper pattern
    - If manual not available, use the following tightening sequence:

4. If wheel is free to rotate, move the nut to be tightened to the top position

5. Use proper tightening procedure
    - Tighten with lugwrench

6. Use torque wrench for final tightening
    - Follow torque specifications in owners manual
    - Don't over tighten
        - Can damage rim
        - Can strip treads on stud
    - Don't under tighten
        - Nuts can work loose
        - Wheel could come off

NOTE: Never use oil or grease on studs.

7. If tires equipped with pressure sensing device
    - Remove caps
    - Connect air line to actuator

8. Lower vehicle
    - Lower jack until tire supports the weight of the vehicle
    - Remove the jack

9. Store equipment in proper place
    - Jack and support plank
    - Store damaged tire (where spare came from)
    - Remove wheel chock

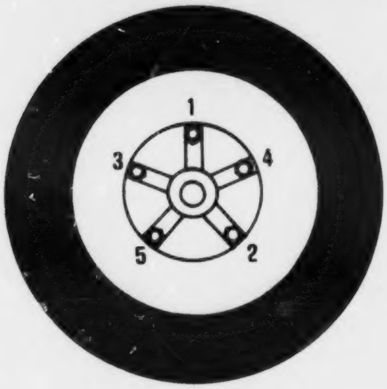
Recheck Torque

1. Stop after driving a few miles and tighten nuts as necessary using torque wrench
    - Rotation of wheel almost always loosens wheel
    - Nuts can fall off unless tightened

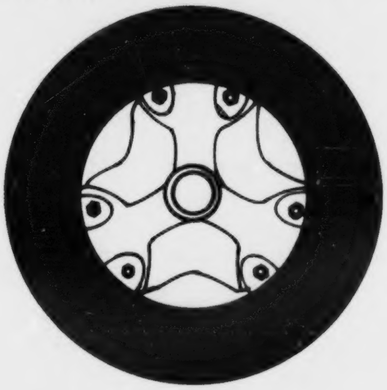
2. Repeat process after 100 miles

Wheel Lug Tightening Sequence For Spoke and Disk Type Wheels

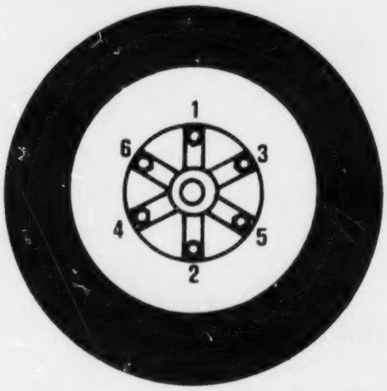
5 Spoke Cast Wheel



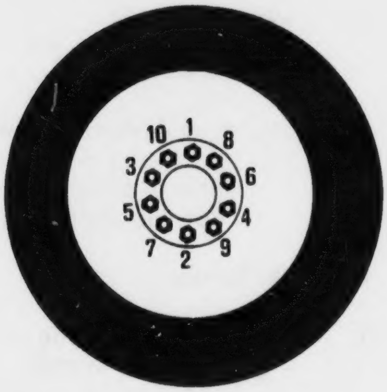
3 Spoke Cast Wheel



6 Spoke Cast Wheel



Disk Wheel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Notes:

Types of Vehicle Maintenance

- Routine Servicing
  - Adding Fuel, Oil, Coolant
  - Draining Moisture From Air and Fuel Systems

- Scheduled Preventive Maintenance
  - Based on Time or Mileage or a Combination of Time/Miles
  - Usually Set Up Under Four Levels (Such as):
    - Type A–Perhaps Grease and Oil Change Only
    - Type B–Same as A. But Does More Things
    - Type C–All of A. Plus B. And an Engine Tune-Up
    - Type D–All of A. B. and C. Plus a Major Overhaul of Engine

- Unscheduled Maintenance/Repair
  - Road Breakdowns
  - Correct Problems Detected and Reported by Drivers During Vehicle Pre- and Post-Trip Inspections
  - Repair of Accident Damage

Driver Reporting Requirements

Written Report

- Vehicle Condition Report
- Submit at the End of Each Trip or 24-Hr Period
- Review Previous Reports and Verify Repairs

Oral Report

- Report to Mechanic, If Permitted
- Gives Mechanic an Opportunity to Ask Questions and Gain Understanding

Daily Vehicle Condition Report

- Required by FMCSRs
- Complete, Even if No Problems Occur
- If Malfunction Did Occur:
  - Identify Component Involved
  - Describe Symptoms
  - Provide Oral Report (If Permitted)

LESSON 2 ENGINE FLUIDS, FILTERS, LIGHTS AND FUSES (LAB)

Overview

Time Allotted: 3 hours

Prerequisites: Unit 4.1, and 4.2, Lesson 1

Purpose:

The purpose of this lesson is to acquaint students with inspection and servicing requirements for the engine fluids, filters, lights, fuses and circuit breakers.

The instructor will then demonstrate the servicing procedures.

Materials

Instructional Aids

None

Student Material

Preventive Maintenance Checklsit Numbers 1-6, in Unit 4.2 of Student Manual

Instructor Material

Preventive Maintenance Checklist Nubmers 1-6, (at end of previous lesson)

Maintenance manuals for the vehicle(s) that will be used in this lesson

Equipment

A tractor trailer and all necessary tools and materials to complete the servicing procedures, i.e., wiping rags, wrenches, bulbs, fuses, oil and filters.

Facilities

A maintenance facility with a servicing pit or lift is highly desirable, however if none is available the lesson may be conducted on a paved surface outdoors.

Content

Activity or Topic	Approximate Time
1. CHECKING AND CHANGING ENGINE FLUIDS AND FILTERS	1 hour 30 minute
2. INSPECTING AND CHANGING LIGHTS AND FUSES	1 hour 30 minute
	3 hours

1. CHECKING AND CHANGING ENGINE FLUIDS AND FILTERS (1 hour 30 minutes)

Purpose

The purpose of this exercise is to familiarize students with some basic preventive maintenance and servicing procedures.

Range Layout

No specific layout required.

Directions

1. This exercise will last approximately 1-1/2 hours dependent upon vehicle type, student group sizes, etc.
2. Instructor will divide class into small groups. Groups should be small enough for students to easily observe demonstrations.
3. Instructor will demonstrate and orally describe in full detail the proper procedures for checking and/ or changing:
   - A. Fuel tank, fuel level and filter
   - B. Oil level and filter
   - C. Coolant level and filter
   - D. Battery fluid level
   - E. Power steering fluid level
   - F. Air filter element
4. Students will both aid and observe.

Procedures

Checking Fuel Tank, Fuel Level and Changing Filters

Fuel Tanks

- Open drain cocks on bottom of tanks and drain off any water present
- Tighten all fuel tank mountings and brackets
- Check seal in fuel tank cap and check breather hole

Fuel Level

- Park vehicle on level ground
- Open fuel tank cap
- Visually check fuel level
- Make sure level corresponds with gauge reading in cab

Changing Filters

- Strainer replacement
  - Turn fuel filter element counter clockwise until it is free of base
  - Discard filter element
  - Clean seal surface on filter base

        - Wipe up any fuel that was spilled during filter removal
        - Coat seal of new filter with clean diesel fuel or engine oil
        - Thread filter onto base until seal contacts base
        - Tighten filter an additional 1/2 turn
        - Start engine and check for leaks
    - Filter replacement
        - Turn off fuel supply from fuel tanks
        - Place a suitable container under filter
        - Open drain cock in filter housing base and drain
        - Remove filter body (with element)
        - Discard filter element
        - Clean housing and close drain cock
        - Install new filter in housing
        - Fill housing with clean fuel
        - Install filter housing (containing new filter element) with a new gasket (lubricate with fuel or engine oil) and tighten
        - Open fuel line shut off valve
        - Start engine
        - Check for leaks

Checking Oil Level and Changing Oil Filters

Oil Level

- Park vehicle on level ground, shut engine off (allow a few minutes for oil to drain down before checking)
- Locate dip stick
- Pull stick out, wipe clean and replace
- Pull out again, check oil level
- Level should be maintained between the full and add marks (Do not overfill or operate vehicle when oil level is below add mark)

Changing Filter

- Remove drain plug from bottom of filter housing, drain oil
- Remove filter housing containing filter element (consult manufacturer's owner guides for specific instructions on removal of filter elements)
- Discard filter
- Clean housing and cover
- Replace with new filter element, secure housing
- Replace drain plug
- Start engine, check for leaks
- Shut engine down, wait ten minutes
- Check oil level (add sufficient oil to bring it to proper level on dip stick)

Checking Coolant Level and Changing Coolant Filter

Coolant Level

- Preparation
    - Shut engine off (never check when running)
    - Wait until engine has cooled
    - Even then use extreme care when removing radiator cap
    - Protect hands (gloves, thick cloth)

Removing radiator cap:
- Turn cap slowly to the first stop
- Step back while pressure is released from cooling system
- When all pressure has been released, press down on the cap and remove it

Checking coolant level
- Visually check level of coolant, add if necessary (consult operators's manual for specific instruction for your particular vehicle)
- Some vehicles have sight glasses or see through overflow containers for checking coolant level.

Changing Filters

Preparation
- Shut engine off
- Wait until engine has cooled
- Do not handle hot filter with bare hands (gloves, thick cloth)

Removing filter:
- Turn filter element counter clockwise and remove
- Replace with new filter element and new cover gasket
- Start engine, check for leaks

Checking Battery Fluid Level

Precautions

- Batteries contain acid which will cause severe burns if contacted with skin
- Batteries give off explosive gases--no smoking
- Protect eyes with goggles or glasses

Checking Fluid Level

- Open battery caps, check fluid level (not necessary with maintenance free batteries)
- Fill if needed--bring level to bottom of split ring in cell filler well (add distilled water if possible, never use acid)

Procedure for Checking Power Steering Fluid Level

Preparation

- With engine running at normal operating temperature,turn steering wheel back and forth several times
- Stabilizes fluid level

Checking Fluid Level

- Stop engine
- Remove dipstick
- Fluid should register between bottom of dipstick and full mark
- Add if necessary, bring level to full mark, do not overfill
- (Consult manufacturers specifications in owners manual for correct type of fluids)

Changing Air Filter Element

Dry Air Cleaners

On air cleaners with a restrictions indicator, change or clean element when indicator shows red

On vehicles equipped with an air filter restriction gauge, replace element when gauge reads 25" for Cummins and Caterpillar engines and 20" for Detroit Diesel engines

Steps

Remove end covering from housing
Remove filter element (do not handle with greasy hands)
Inspect end cover and gasket surfaces for dents or possible air leaks
Check outlet tube (should be clean and undamaged)
Check filter element for holes and tears (replace if damaged)
If filter is undamaged, it may be cleaned by using compressed air (always blow air in opposite direction of normal air cleaner flow)
Wipe out any dirt in the filter housing
Install filter element
Replace end cover and secure

NOTE: Always handle filter element carefully to prevent dirt from shaking loose onto clean side of system.

2. INSPECTING AND CHANGING LIGHTS AND FUSES (1 hour 30 minutes)

Purpose

The purpose of this exercise is to familiarize students with some basic preventive maintenance and servicing procedures.

Range Layout

No specific layout required.

Directions

1. This exercise will last 20 minutes

2. Instructor will divide class into small groups. Groups should be small enough for students to easily observe demonstration.

3. Instructor will demonstrate the proper procedures for inspecting and changing lights, fuses and circuit breakers.

Procedures

Changing Head Lamp And Bulb In A Clearance Lamp

- A supply of smaller lights as well as sealed beam head lamps, fuses and wire should be carried with the vehicle
- Steps
  - Park vehicle, shut off and secure
  - Remove trim ring from burned out light
  - Unfasten mounting screws
  - Disconnect light from socket and remove
  - Remove any dirt or bugs from socket area
  - Replace with new head lamp (plug it in)
  - Test lamp to see if it's working properly
  - Fasten mounting screws
  - Replace trim ring
  - Make sure new light is clean

NOTE: Do not touch head lamp adjusting screws!

Changing Fuses and Resetting Circuit Breakers

- Fuses
  - Precautions
    - Always use right size and amp fuse (new fuse should have the same amp rating as the fuse it replaces)
  - Steps
    - Check the fuse and clip holder for cleanliness and burrs
    - If dirty, touch up the contact points with a coarse cloth
    - Gently, but firmly, snap new fuse into clip holder (make sure there is a good connection between fuse ends and clip holder)

- Circuit Breakers
  - Remove circuit breaker cover panel
  - Then flip the circuit breaker switch back in the opposite direction to reset
  - Replace panel.

Student Practice

Have each student remove the lense and replace a bulb in a stop lamp

Observation

The instructor will make note of students who have difficulty in locating, identifying, or explaining certain components. Particular attention should be given to detecting misconceptions, including consistently:

- o mistaking one component for another.
- o going to the wrong part of the vehicle to find a component.
- o mistaking the purpose and function of one component with that of another.

The instructor should also watch for the student who provides a memorized explanation of purpose or function without reflecting true understanding.

Evaluation

Since there are no performance objectives for this Lesson, there are no specific criteria to be used in assessing students. However, probing questions should be asked in order to assess understanding. Students who lack true understanding should be referred to their Student Manuals and should also be reported to the school administration for remedial instruction.

LESSON 3 CHANGING TIRES AND CHECKING AIR PRESSURE (LAB)

Overview

Time Allotted: 2 Hours

Prerequisites: Unit 4.1, and 4.2, Unit Lesson 1

Purpose:

The purpose of this lesson is to explain and demonstrate the correct procedures for checking tire inflation pressure and for changing a flat or damaged tire and wheel assembly. The actual changing of a tire, removing from a rim and/or installation on a rim is not taught as this should only be done by a trained mechanic with the proper tools. Students must however, know how to remove a flat tire in a roadside emergency and replace it with the spare tire carried on the vehicle.

Materials

Instructional Aids

None

Student Material

Preventive Maintenance Checklist Number 9, in Unit 4.2 of Student Manual

Instructor Material

Preventive Maintenance Checklist Number 9 (at end of lesson 1 in this unit)

Maintenance and/or owners manuals for the vehicle(s) that will be used in this lesson, listing tire inflation pressures and directions covering jacking up the vehicle and safe procedures for removing tire/wheel assembly.

Equipment

A truck-tractor (preferable a twin-screw)

Several tire pressure gauges (preferably of different types)

A wheel jack of proper type and hardwood block to go under the jack base

Several wheel chocks

Lug wrench and torque wrench

Facilities

Lessons should take place in a shop or garage, if none available may be conducted on a paved surface outdoors

Content

Activity or Topic	Approximate Time
1. Checking Tire Air Pressure	20 minutes
2. Changing a Wheel and Tire Assembly	1 hour 40 minutes
	2 hours

1. CHECKING TIRE AIR PRESSURE (20 minutes)

Purpose

The purpose of this exercise is to familiarize the students with the correct procedure for checking tire air pressure.

Range Layout

No specific layout required

Direction

1. The exercise will last 20 minutes.
2. The class will be divided into small groups. Groups should be small enough for all students to easily view demonstration.
3. Instructor will demonstrate proper procedures for checking tire air pressure.
4. Each student will be allowed to practice the procedure.

Procedures

When tires have cooled (never check air pressure when tires are hot)
  Remove valve stem cap
  Place air gauge over valve stem opening
  Read inflation pressure
  Check operators manual or read correct inflation pressure for tire on its side wall
  Replace cap

2. CHANGING A WHEEL (WITH TIRE MOUNTED) (1 hour 40 minutes)

Purpose

The purpose of this exercise is to allow students to observe proper procedure for changing a tire.

Range Layout

No specific layout required

Directions

1. The exercise will last 1 hour and 40 minutes.
2. The class will be divided into small groups. Groups should be small enough to enable students to easily observe the demonstration.

3. Prior to demonstrating the tire changing procedure, the instructor will point out safety precautions.

   A. Changing a tire can be dangerous (when at all possible should be done by a trained professional).

   B. Driver should change tires only in emergency situations.

   C. Driver should be familiar with tire type and style of wheel as well as knowing the manufacturer's specifications.

   D. Always be extra cautious when handling an inflated tire/wheel assembly as they can "explode" with great force.

4. Instructor will then change an inner dual wheel and tire assembly while students both aid and observe. Instructor will orally describe in detail each step in the procedure as it is performed.

Procedure

Secure Vehicle

- Park vehicle on level ground
- Chock front wheels of tractor
- Apply emergency brake and place transmission in lowest forward gear

Inspect Tire

- Inflation
  - Check for over inflation and/or damaged rim/lock rings, etc.
  - Compare appearance of tire with that of other tires
- Seating
  - Check side and lock rings
  - On duals, also check seating of inner tire
- If inflation or seating does not appear normal
  - Avoid attempting tire change
  - Obtain expert help

Place Jack

- Refer to owners manual to determine proper placement of jack for removing the tire to be changed
- Place hardwood plank or block under base of jack regardless of surface

Remove Wheel and Tire Assembly

- Loosen stud nuts
- Observe direction of rotation
  - Examine thread
  - On some wheels, direction indicated on end of stud
    - "R" means to right (clockwise)
    - "L" means to left (counter-clockwise)
- Stand to one side of tire
  - Portions of wheel assembly may fly outward when stud bolts are loosened

- - Could cause injury
  - Turn stud nuts by hand until they are flush with the end of the stud
  - Loosen clamp (on cast-type wheels)
  - Tap with hammer
    - Don't remove stud nuts until clamp is free
    - Clamp could fly off studs
  - Remove air lines from the wheels with tire pressure sensing device, and cap the line and actuator
- Raise vehicle
  - Jack up vehicle to allow tire to clear the surface
  - Stand clear of vehicle while raising jack
  - Vehicle could slip off jack
    - Could cause severe injury if arms, legs, or head are under the vehicle
- Remove the wheel assembly
  - Remove stud nuts
  - Pull off wheel assembly
- Remove inside of duals following the same procedure

Replace Wheels

- Replace inside duals first
- Mount wheel
  - Place wheel on hub
  - Install rim clamp (cast-type wheel)
  - Install stud nuts
  - Tighten nuts properly
- Follow prescribed pattern
  - Consult owners manual for proper pattern.
  - If manual not available, use the following sequence:
    - Replace nuts on studs
    - Go around the wheel, tightening every other nut.
    - After tightening the third nut, tighten the nut the opposite (directly across the hub).
    - Go around the wheel tightening the last two nuts.
    - Repeat the process for final tightening.
  - If wheel is free to rotate move the nut to be tightened to the top position.
  - Use proper tightening procedure.
  - Tighten to correct torque.
  - (Remind students of torque definition: rotary or twisting force.)
  - Use torque wrench for final tightening.
    - Follow torque specifications in owners manual.
    - Don't over tighten
      - Can damage rim
      - Can strip treads on stud
    - Don't under tighten
      - Nuts can work loose
      - Wheel could come off
  - Never use oil or grease on studs
  - If tires equipped with pressure sensing device
    - Remove caps
    - Connect air line to actuator

- Lower vehicle.
    - Lower jack until tire supports the weight of the vehicle.
    - Remove the jack.
- Store equipment in proper place.
    - Jack and support plank
    - Store damaged tire (where spare came from)
    - Remove wheel chocks.

Recheck Torque

- Stop after driving a few miles and tighten nuts as necessary using torque wrench.
    - Rotation of wheel almost always loosens wheel.
    - Nuts can fall off unless tightened.
- Repeat process after 100 miles.
- If in terminal, drive vehicle around yard making several sharp turns - then use torque wrench to recheck torque.

Observation

The instructor will make note of students who have difficulty in locating, identifying, or explaining certain components. Particular attention should be given to detecting misconceptions, including consistently:

- o mistaking one component for another.
- o going to the wrong part of the vehicle to find a component.
- o mistaking the purpose and function of one component with that of another.

The instructor should also watch for the student who provides a memorized explanation of purpose or function without reflecting true understanding.

Evaluation

Since there are no performance objectives for this Lesson, there are no specific criteria to be used in assessing students. However, probing questions should be asked in order to assess understanding. Students who lack true understanding should be referred to their Student Manuals and should also be reported to the school administration for remedial instruction.

LESSON 4 AIR RESERVOIR DRAINAGE AND BRAKE ADJUSTMENT (LAB)

Overview

Time Allotted: 2 hours 30 minutes

Prerequisites: Unit 4.1, and 4.2, Lesson 1

Purpose:

The purpose of this lesson is to allow students to observe the proper procedures for draining moisture from vehicle brake system air reservoirs and fuel systems as well as for adjusting vehicle air brakes.

Materials

Instructional Aids

None

Student Material

Preventive Maintenance Checklist Numbers 7 and 8, in Unit 4.2 of Student Manual

Instructor Material

Preventive Maintenance Checklist Numbers 7 and 8 (at the end of lesson 1 in this unit)

Maintenance and/or owners manuals for the vehicle(s) that will be used in this lesson

Broad selection of both truck and brake component manufacturer's manuals containing instructions on how to correctly adjust the various types of air brakes, i.e., S-cam, wedge and disk types

Equipment

A tractor-trailer and all necessary tools with which to make brake adjustments, i.e., wrenches, pry bar, ruler, flashlight, wiping rags and wheel chocks

A good selection of discarded brake system parts, i.e., brake chambers, diaphgrams, push rods, etc. for use in hands-on demonstration and student examination

Facilities

Lesson should take place in a shop or garage, if none available may be conducted on a paved surface outdoors

Content

Activity or Topic	Approximate Time
1. DRAINING AIR RESERVOIRS	20 minutes
2. DRAINING FUEL FILTERS	20 minutes
3. ADJUSTING BRAKES	1 hour 50 minutes
	2 hours 30 minutes

1. DRAINING AIR RESERVOIRS (20 minutes)

Purpose

The purpose of this exercise is to familiarize students with the proper procedure for draining moisture from air reservoir tanks.

Range Layout

No specific layout required.

Directions

1. This exercise will last approximately 20 minutes.
2. Divide class into small groups. The groups should be small enough to allow each student to easily observe the demonstration.
3. Utilize all air reservoirs on vehicle(s) so more than one group can observe at the same time.
4. Demonstrate correct procedure for draining vehicle air reservoirs.
5. Each student will be allowed to practice procedure.
6. Explain that reservoirs will be drained daily before the start of first class.

Procedures

Place vehicle on level ground.
Chock wheels.
Open drain cocks by twisting valve on bottom of tank.
    Allow all air pressure to escape (0 psi) permitting all moisture to drain.
Close valve.

2. DRAINING FUEL FILTERS (20 minutes)

Purpose

The purpose of this exercise is to familiarize students with the procedure for draining water from fuel system filters.

Range Layout

No specific layout required.

Directions

Same as previous exercise above.

Procedures

Locate filter with water separator
Point out separator portion of filter
Remove drain plug at bottom of filter
Allow small amunt of fluid to drain
Show or describe appearance of water
Replace drain plug

3. ADJUSTING BRAKES (1 hour 50 minutes)

Purpose

The purpose of this exercise is to familiarize students with the proper procedures for manually adjusting vehicle air brakes.

Range Layout

No specific layout required

Directions

1. This exercise will last approximately 110 minutes.
2. Instructor will divide class into small groups. Groups should be small enough for each student to easily observe the demonstration.
3. Several groups will be allowed to observe the demonstrations by utilizing the different brake chambers on the vehicle(s).
4. Instructor demonstrates correct procedures for manually adjusting vehicle brakes, while orally describing each action taken and reason therefore.
5. After making correct adjustment, the instructor will put brakes out of adjustment to allow for student practice in putting them back into proper adjustment.

Procedures

Driver Adjustment of Brakes

The instructor first cautions students on the skill requirements, the dangers of incorrectly adjusted brakes and the conditions under which a driver should attempt to adjust his/her brakes.

Skill Requirements
High skill level and experience
Few drivers have the required skill.
Brake adjustments should therefore be performed only by qualified brake mechanics.

Danger

Improperly adjusted brakes can result in the following:

- Increase of stopping distance.
- Inability to stop quickly in an emergency.
- Runaway vehicle on downgrades.

Fatalities have resulted from brakes improperly adjusted by driver.

Condition

Drivers should attempt adjustments only when there is no alternative, or under such conditions as

- Brakes require immediate adjustments so badly as to render the vehicle dangerous to operate any further.
- Driver has had necessary instruction and practice.
- Required tools are available.

Air Brake System - Brake Adjustments

General Instructions:

- Park vehicle on level ground.
- Chock wheels against vehicle movement.
- Jack up the axle so that wheels just clear the ground.

NOTE: If this is an emergency situation and wheels can not be raised then take the following action; take a small hammer and tap the brake drum. A dull thud indicates that brake shoes are dragging on the brake drum. A ringing sound indicates that the shoes are clear of the drum.

- Make sure wheel bearings are correctly adjusted.
- Use a pry bar under the tire to release the load off of the bearings while the brakes are being adjusted. If this is an "emergency roadside" adjustment and wheels can not be raised, then recognize that your brake adjustment can only be (at best) considered "temporary" and you should **not** drive any futher than the nearest maintenance facility where the job can be redone in a proper manner.
- Carefully follow the manufacturer's recommended brake adjustment procedures.

Caution: On spring-loaded "fail safe" brakes never put any part of your body directly in the path of the spring chamber during a full brake application. This is necessary as there have been some accidents where the chamber containing the spring has ruptured (due to corrosion) and the spring has shot out with explosive force. Be aware that the force is sufficient to propel the spring right through a human body. If spring containment chamber appears to be badly corroded, don't take chances - call for a mechanic who is an expert on brakes to handle the adjustment for you.

There are three basic types of brakes - the "S-cam" type, the wedge type and the disk type. Each has a different adjustment procedure and the manufacturer's manual for your vehicle's brakes must be faithfully followed. Never, ever, assume that the procedure called for on one product or "brand" will be the same for another. **ALWAYS CHECK THE MANUAL FOR SPECIFIC DIRECTIONS!**

Adjustment Methods

The following is a generalized, sample illustration of how to adjust brakes

- Drum Brakes (S-cam Type)
  - Preparation
    - Chock wheels
    - Clean adjusting area
    - Press down on lock collar
    - Turn adjusting screw until shoes make contact with the drum
    - Visually check to see contact was made or tap with hammer
    - Adjusting screw being turned the wrong way if
      - screw turns more than two full turns,
      - the push rod starts to pull out of chamber
  - Adjustment
    - Back screw off 1/2 turn
    - Measure push rod travel
      - Air pressure
        - Have someone apply pressure (100 psi)
        - Push rod travel should travel between 1 and 1-1/4 inches pressure) or 1/2 to 3/4 inch (pry bar)
      - Pry bar
        - If alone, pull out push rod with pry bar
        - Should travel between 1/2 and 3/4 inches

- Disk Brakes (Power Screw)
  - Preparation
    - Clean adjusting area
    - Turn adjusting nut until brake linings contact disk
    - Check visually to see that contact was made
  - Adjustment
    - After linings contact disk, back screw off one complete turn
    - Road test (this type adjustment will provide a slightly increased stroke and will necessitate more frequent adjustments)

Remember in actual practice you must follow the vehicle maintenance manual and not the above.

Observation

The instructor will make note of students who have difficulty in locating, identifying, or explaining certain components. Particular attention should be given to detecting misconceptions, including consistently

- mistaking one component for another.
- going to the wrong part of the vehicle to find a component.
- mistaking the purpose and function of one component with that of another.

The instructor should also watch for student who provide a memorized explanation of purpose or function without reflecting true understanding.

Evaluation

Since there are no performance objectives for this Lesson, there are no specific criteria to be used in assessing students. However, probing questions should be asked in order to assess understanding. Students who lack true understanding should be referred to their Student Manuals and should also be reported to the school administration for remedial instruction.

UNIT 4.3
DIAGNOSING AND REPORTING MALFUNCTIONS

UNIT 4.3 DIAGNOSING AND REPORTING MALFUNCTIONS

PURPOSE

The purpose of this unit is to enable the students to diagnose and report vehicle malfunctions, and to perform emergency starting procedures correctly.

OBJECTIVES

Performance Objectives

Students must be able to

- identify vehicle systems or components that that are functioning properly, are in immiment danger of failing, or functioning improperly.
- describe symptoms of improper operation completely and accurately to maintenance personnel.
- start vehicles with dead batteries or without air pressure (if equipped with air starters).

Students must

- avoid attempting to perform maintenance for which they are not qualified.
- properly report breakdowns occurring enroute.

Knowledge Objectives

Students must know

- the procedures for starting vehicles with dead batteries or without air pressure.
- the symptoms of improper operation revealed through instruments and sight, sound, feel, smell, and vehicle operation characteristics.
- the danger of exceeding maintenance restrictions imposed by the employer or the driver's skill limitations.

Skill Objectives

None

Attitude Objectives

Students must believe that

- drivers and mechanics must work together as a team to achieve safe, economic operation for maximum job security for all employees.

LESSONS

Lesson 1.	Diagnosing and Reporting Malfunctions (Classroom)	3 hours
Lesson 2.	Emergency Starting Procedures (Lab)	1 hours

LESSON 1 DIAGNOSING AND REPORTING MALFUNCTIONS (CLASSROOM)

Overview

Time Allotted: 3 hours

Prerequisites: Unit 4.2

Purpose:

The purpose of this lesson is to present and discuss the principles of diagnosing and reporting vehicle malfunctions, in order to prepare the students to apply them on the road.

Students aren't expected to become mechanical experts, but still should be able to identify the exact sources of malfunctions. The primary purpose of the lesson is to enable them to gather and report symptoms accurately enough to enable mechanics to perform necessary diagnosis (shop) or to come to site of road breakdown with necessary tools and parts for the problem.

Sample problems concerning vehicle malfunctions will be presented to the class one at a time. The students will be given the situation and the symptoms. They should be given time to recognize the system involved, what they should look for, what should be done to correct the problem, when it should be done and the consequences of not identifying the problem. Their answers should be discussed in class.

Materials

Instructional Aids

Visuals 1 - 5

Student Material

Troubleshooting guide, in Unit 4.3 of Student Manual

Instructor Material

Troubleshooting guide (at end of lesson)

Supply of blank Daily Vehicle Condition Report forms for student practice

Content

Activity or Topic	Approximate Time
1. THE IMPORTANCE OF TROUBLESHOOTING AND REPORTING	5 minutes
2. TROUBLE SHOOTING	15 minutes
3. REPORTING REQUIREMENTS	15 minutes
4. PROBLEM-SOLVING EXERCISES	2 hours 15 minutes
5. SUMMARY	10 minutes
	3 hours

1. THE IMPORTANCE OF TROUBLESHOOTING AND REPORTING (5 minutes)

Visual 1 Driver Awareness

Driver Awareness

The driver must be aware of the condition of his vehicle's systems at all times. This can be done by using all of the senses.

Seeing--Instrument gauges, exhaust smoke, fluid leaks, damaged tires, missing wheel lugs

Hearing--Engine air leaks and various other vehicle noises

Feeling--Vibrations, swaying, thumping

Smelling--Diesel fuel, smoldering insulation

By using his senses the driver is able to

Notice defect before it develops into road breakdown, costly repair or accident

Report service or adjustment needed

The more familiar the driver is with his vehicle, the better he is able to detect malfunctions

Visual 2 Early Detection of Malfunctions

Early Detection of Malfunctions

Results

- Lower maintenance expense
    - Problems are discovered and corrected before major damage occurs

- Minimum down time
    - Because of early detection, only minor corrections have to be made
    - Vehicles spend less time in shop, more time on the road

- Fewer accidents
    - Problems detected early
    - Vehicles in better condition to run
    - Fewer equipment failures causing accidents, e.g., brake failure

- Longer vehicle life
    - Vehicle care
    - Problems not allowed to get out of hand

Lower operating cost
- Engine operates more efficiently.
- Less drag from other components (e.g., tires, drive train).
- Improves miles-per-gallon of fuel.

Visual 3 Driver Responsibilities

Driver Responsibility

Driver should know his company's maintenance policy.

Driver should understand that he isn't expected to become a mechanical expert; however he must be able to:
- Identify sources of malfunctions and impending malfunctions early.
- Diagnose and fix simple problems where permitted.
  - The extent of repairs made by driver will depend upon many factors:
    - Company's maintenance policy
    - Driver's knowledge and mechanical experience
    - Availability of company-approved repair service
    - Driver's access to tools.

- Report symptoms accurately to mechanics
- Driver should not attempt to fix problems he is not fully qualified to handle

Detecting, diagnosing and reporting vehicle malfunctions is his/her primary trouble shooting role.

Mechanic's Responsibility

Obtain failure symptoms from driver reports
Diagnose causes of vehicle malfunctions
Correct malfunctions
Assure that malfunction has been corrected before releasing vehicle

Driver and Mechanic Joint Responsibility

To cooperate and work with each other for the maximum benefit of the company--after all the "Company" is composed of its employees.

1. TROUBLESHOOTING (15 minutes)

Knowledge of Vehicle

Drivers need to
- familiarize themselves with their vehicle's systems and components
  - know where each systems components are located
  - understand how each system works and why

Understanding how a system works is the first step in recognizing when it is malfunctioning or is in imminent danger of malfunctioning.

A vehicle will in most cases warn driver of impending trouble by giving off warning signals.

Warning signals may come in several different forms

- A sudden decline in fuel mileage.
- A gauge that shows air pressure is not quite what it should be.
- A temperature gauge registering a shade too high or low.
- The signal may come in the form of a thump, bump, grind, whine or rattle, etc.

By having a working knowledge of a vehicle's systems a driver is able to

- recognize the danger signal.
- logically trace problem to its source.
- repair (if permitted) or report findings to a qualified mechanic.

Detection of Symptoms

The key to troubleshooting is to

- be constantly alert.
- know enough about your vehicle's systems.
- recognize danger signals when they occur.

When a danger signal from the vehicle is detected driver should

- If moving, stop vehicle as soon as possible (or as soon as severity of problem dictates).
- Think the problem through before starting to troubleshoot.
- Start with the most obvious cause of trouble in the most obvious place where it could occur.

A driver must remember these important points

- He is not a mechanic or a mechanical expert.
- A driver should not troubleshoot problems for a mechanic.
  - If a driver cannot logically trace a problem and identify the source of trouble exactly (i.e., is able to see that a part is broken), he should not guess or tell mechanic what he thinks it is.
  - Driver should report only his findings up to the point that he stopped troubleshooting (i.e., components that were checked and what was found or observed, smelled, etc.)

Troubleshooting Guide

Included in the student material for this unit is a troubleshooting guide.

The guide is broken down by the senses (i.e., if you see, if you hear, if you feel, or if you smell something abnormal). It lists the

- Systems affected
- What to look for
- What to do

Students should

- Familiarize themselves with the common malfunctions in the guide.
- Learn to relate the signals picked up by their senses to the malfunctioning systems involved.

NOTE: A copy of the Troubleshooting Guide for the instructor can be found at the end of this lesson).

Example 1: Loud Humming

Driver hears a loud humming noise usually directly proportional in loudness to road speed

Possible system(s) involved
- Tires
- Wheels/rims/lugs
- Engine
- Drive train

Probable cause
- Tires out of balance.
- Treads distorted or separated.
- Fan blade is bent or broken.
- U-joint angle is improper or excessive.
- Center bearing in drive shaft is loose, worn, or improperly installed.

Proper action
- Stop vehicle as soon as you can find a safe place.
- Determine most logical point to start troubleshooting (e.g., tires and wheels/rims/lugs).
- Then check
  - Distortion of tire tread.
  - Unevenly worn or separated tread.
- (Driver finds that tires and wheels are fine).
- Since it is impossible for driver to check tire balance, the next logical place to check is the engine compartment.
- (Driver finds a severely bent fan blade).
- At the next truck stop driver has mechanic repair fan.

Example 2: Crossed Signals

Driver turns on right turn signal light.
- Tractor signal light on right side flashes.
- Trailer signal light on left side flashes.

Possible system involved--electrical.

Probable cause--electrical connectors crossed or short circuit.

Proper action
- Usually driver should discover this problem during pre-trip inspection before actually getting out on the road.
- Driver should
  - Check electrical hookup between tractor and trailer.
  - Look for loose or damaged wires.

3. REPORTING REQUIREMENTS (15 minutes)

Driver's Job

After a malfunction is discovered, it is the driver's responsibility to
- take corrective action (if problem is one that he is capable of fixing and/or company policy permits him to fix), and to
- report symptoms and findings of trouble shooting to maintenance department (if driver is able to find and see exact cause).

Written Report

Federal regulations and most companies require drivers to
- submit one report for each trip or 24-hour period within a trip, and to
- review previous vehicle condition reports and verify that the problems (if any) have been corrected.

Oral Report

As well as submitting a written report, an oral report in person to the mechanic involved (if permitted) is beneficial.

This accomplishes two things:
- gives mechanic a chance to ask questions about written report.
- helps mechanic to better understand the problem.

It is important for driver and mechanic to work as a team.

Limitations

Driver must remember
- it is essential to report only the facts about the symptoms and what the troubleshooting has turned up, not to guess or speculate.
- it is the mechanic's job to take information from driver to solve and repair problem.
- speculation may only hinder and delay process.

Vehicle Condition Report Procedures

Each company has its own condition report forms based upon type of operation.

Information and the way it is presented on form should be a precise and accurate written report, allowing maintenance department to locate defects accurately and quickly.

If no problems occurred during trip or no defects were found this should be noted on form.

If malfunctions did occur, driver should
- check appropriate place on form denoting system or component involved, and
- describe symptoms and troubleshooting findings in as much detail as called for by company in the remarks or comments section of report.
  - Some call for a complete description.
  - Some permit only a checklist.

  - Make an oral report to mechanic involved (if company policy permits).
- Items to include in remarks or comments section:
  - Symptoms--A description of the way problem appears to driver
    - Onset
      - How symptom appeared (i.e., did they come all of a sudden or gradually)
      - If they came on gradually--over what period of time (i.e. several minutes, hours, days)
    - Consistency
      - How consistent are symptoms (i.e., do they occur continually or do they come and go)
      - If they come and go, how frequently (i.e., every few seconds, minutes, hours)
    - Conditions
      - What conditions prevailed at the time the symptoms occurred
      - How long had you been driving
      - Was it hot or cold
      - What type of cargo and vehicle weight were you carrying
      - How far did your troubleshooting go
        - What did you find (Only report findings that you are exactly sure of, again, do not speculate)
        - If you are not sure what you found, don't guess
        - Did you repair or attempt to repair anything, if so what

EXAMPLE: Driver notices

- Braking response time is getting slower.
- Vehicle pulls to the right when brakes are applied.

Possible system(s) involved

- Tires
- Suspension
- Braking

Probable Cause

- Soft or underinflated tire.
- Broken spring in suspension system.
- Front brakes out of adjustment (brake on right side tighter than one on the left side).
- Reaction time between trailer and tractor brakes is too great.
- Front end out of alignment.

Proper action

- Stop vehicle as soon as possible.
- Determine most logical point to start trouble-shooting (e.g., front tires).
- Then check
  - front tire inflation (Driver finds that tires are properly inflated).

Next check
  - front end suspension system for broken or bent springs, shock absorbers, etc. (Driver thinks suspension system is fine, but is not sure)

The next logical place to check would be the brakes.
  - unless in an emergency, brakes should not be touched by driver (again, know your company's maintenance policy).
  - drive vehicle to your maintenance department or the next available truck stop for repairs if possible--if not, call for help.

Reporting problem
  - A written, vehicle condition report form should be filled out.

Visual 4 Vehicle Condition Report Form--Correctly Filled Out

Notice that:
  - driver did not speculate.
  - only the facts (as interpreted by driver) were presented on form.
  - driver did not check component since malfunction not identified.

Visual 5 Vehicle Condition Report Form--Incorrectly Filled Out

Driver
  - did not relay the facts about the problem
  - just assumed the brakes were the problem

Mechanic will have no idea what happened on the road to cause driver to say the brakes were faulty.

4. PROBLEM-SOLVING EXERCISES (2 hours 15 minutes)

In this exercise, 13 problems will be discussed

Instructor will be responsible for
  - introducing the various problems
  - keeping the exercise moving as well as encouraging class participation

Instructors will
  - present symptoms for each problem solving exercise
  - lead the class in
    - discussing the symptoms
    - identifying source of problem probable cause of symptoms
    - determining what steps to take--if source of problem can be identified (e.g., fix themselves, continue driving to a service area, park vehicle and call a mechanic).

Discussion should proceed for each problem in the logical order listed above.
  - A symptom should be presented.

Instructor should call on class to:
  - identify system(s) involved.
  - trace problem toward its source.
  - determine what action should be taken.

Instructor should
    designate a source at some point in discussion
    vary designated source so that sometimes it may be fixed by driver and other times it cannot.
On some problems let student run through entire troubleshooting process without finding a source.

EXAMPLE: Symptom--Trailer lights are blinking on and off.
    Instructor--(to class) "What system is involved and where would the first logical place to look be?"
    Class--"Electrical system" or
        "Electrical connection between tractor and trailer."
    Instructor--"If connection is tight and in working order, where would you look next?"
    Class--"For any bare wires or worn insulation."
    Instructor--"If the source of the problem was a worn wire at connection point between tractor and trailer?" How would you proceed if your company allowed you to make minor repairs, if it did not?"

This type of discussion should continue until all the possible problem areas have been discussed or instructor designates the source
After source has been determined, students must determine what action should be taken and when as a result of their trouble shooting findings
After each problem has been discussed, a vehicle condition report should be filled out by each student (e.g., one form for each problem-solving exercise)

Students should be furnished with a vehicle condition report form for each problem (i.e., use forms employed by different companies so that students become familiar with a variety of different forms)

After forms have been filled out
    instructor should ask different students to read the information they have placed on their form
    information should be critiqued by rest of class with instructor supervising discussion

NOTE: The items listed under the "Probable Cause" section in the problems listed are listed in the most logical order to start troubleshooting.

Exercises

Problem 1

Each time you stop, the tractor is thumped or pushed in the rear by trailer.

Possible system(s) involved
    Air brake (trailer)
    Coupling

Probable cause
- Air line connections between tractor and trailer
  - Loose glad hand connections.
  - Worn or missing O-ring.
- Air lines from glad hands to brake chambers.
  - Holes or cracks in line.
  - Kinked hose.
- Brake chambers
  - Air leaks
  - Slack adjuster
- Fifth wheel locking mechanism loose
- Fifth wheel slack adjuster needs adjusting

Proper action
- Stop at first available place that you can pull vehicle off road
- Check for causes listed above.
- If possible, move on to next truck stop or available place that has a phone where you can call maintenance department for instructions (explain findings accurately).

Problem 2

Your mirrors are adjusted properly but you still see more of one side of trailer than the other (This is called trailer dog-legging).

Possible system(s) involved--axles.

Probable cause
- Sliding tandems
  - Lock pins holding tandems in place are not in holes opposite each other.
  - The pins are lost or gone completely.
  - Pins are jarred loose (e.g., from pot holes, rough road, vibrations, etc.)
- Fixed tandems
  - Axles are just not aligned properly.

Proper action
- Slow down immediately
- Find place to pull off road
- Locate problem areas discussed above
- If sliding tandems,
  - make sure lock pins are placed in holes opposite each other.
  - replace pins if lost.
  - tighten if pins jarred loose.

- If fixed tandems,
  - Pull into first truck stop or place where you can phone your maintenance department for instructions.

Problem 3

Coolant temperature suddenly rises.
Oil pressure is falling fast.

Possible system(s) involved--lubrication.

Probable cause
- Low oil level due to
  - Oil drain plug has fallen out.
  - Improperly secured or tightened oil filter.
  - Oil line rupture.
  - Blown gasket.

Proper action
- Pull off road immediately.
- Stop--shut engine off.
- Check all of the above probable causes.
- Call maintenance department for assistance (accurately explain what you have found).

Problem 4

Trailer swaying excessively on turns.

Probable system(s) involved--
- Suspension
- Tires

Probable cause
- Cargo has shifted causing vehicle instability.
- Failed shock absorbers (broken or loose).
- Broken spring or spring hanger.
- Underinflated and/or flat tires.

Proper action
- Slow down immediately.
- Drive to first safe place to pull off road.
- Start looking for causes listed above.
- If cargo has shifted, move it back and secure.
- If shock absorber, spring hanger or spring is the problem; go to the first truck stop.
  - Call maintenance department.
  - Explain problem.
  - Get instructions.
- If tire(s) is the problem.
  - Call for assistance if flat, change if permitted.

Problem 5

Low air warning buzzer keeps activating (split second at a time).

Possible system(s) involved--air brake.

Probable cause
- Severe air leak.
- Ruptured air line.
- Petcock open on air reservoirs.
- Loose gladhand connections.
- Worn or missing o-ring on glad hand.

Proper action
- Stop immediately.
- Park vehicle.
- Locate leak.
- Call for assistance.
- Have repaired before continuing.

Problem 6

Circuit breaker for trailer running lights keeps tripping off

Possible system(s) involved--electrical

Probable cause
- Any exposed or hanging wire (insulation worn off exposing bare wire).
- Broken ground wire.

Proper action
- Stop vehicle at first available spot where it can be pulled off roadway.
- Investigate problem
  - Repair wire, splice broken ground wire and tape.
  - Tape bare exposed wire (if permitted).
  - Reset circuit breaker.
  - Move onto first available truck stop and have electrical system checked by qualified mechanic.

Problem 7

When making sharp turns on slippery road surfaces steering wheel is turned, but tractor continues going straight ahead (i.e., tractor does not turn fully in response to turn of steering wheel).

Possible system(s) involved--steering

Probable cause
- Steering axle too lightly loaded.

Proper action:
- Immediately slow down and look for first safe place to pull off road.
- Redistribute load weight to get more weight on fifth wheel.
- If vehicle is equipped with sliding fifth wheel, move fifth wheel forward.
- If vehicle is not equipped with sliding fifth wheel but is equipped with sliding tandems on trailer, move tandems to the rear (i.e., puts more weight on fifth wheel which in turn will transfer more weight to steering axle.

NOTE: This is primarily a problem on tandem axle tractors with a short wheel base--tandems are a very short distance behind steering wheel and they want to take over control of vehicle, keeping it from going straight ahead.

Problem 8

While coupling a tractor to a trailer, the tractor's protection valve opened, creating severe loss of air pressure.

Possible system(s) involved--air brakes

Probable cause
- Glad hands are not seated properly and/or they have a bad O-ring
- Air lines are crossed, (service line connected to emergency line, emergency line connected to service line).
- Trailer air reservoir petcock is open (depends on sound and how much air is being lost).
- Ruptured air lines.

Proper action
- This problem must be detected before leaving yard.
- Repair or have problem repaired before leaving.

Problem 9

Loud snap or click is heard when starting vehicle from a dead stop.

Possible system(s) involved--drive train.

Probable cause
- Loose universal joint.
- Excessive wear in universal joint or differential.

Proper action
- Be extremely careful when putting vehicle in motion.
- Have drive train checked by a qualified mechanic.
- Proceed to nearest truck stop.

Problem 10

You start to notice exhaust odor in cab.

Possible system(s) involved--exhaust

Probable cause
- Loose connection in exhaust system.
- Leaking muffler.
- Exhaust manifold cracked.

Proper action
- Ventilate cab (roll windows down).
- Stop at next truck stop.
- Have checked and repaired by qualified mechanic as soon as possible.

Problem 11

As you are driving you notice ammeter registering a discharge

Possible system(s) involved--electrical

Probable cause
- Loose connection in wiring.
- Burned out or improperly adjusted generator/alternator.

Proper action
- Do not shut engine off.
- Pull vehicle off road at first available spot.
- Look for obvious cause.
  - Loose connection.
  - Bare insulation or worn wire.
  - Short circuit in wiring.
- Go to first available truck stop or area where expert mechanical assistance is available.

Problem 12

Excessive smoke is seen coming from exhaust pipe.

Possible system(s) involved
- Exhaust
- Fuel

Probable cause
- Dirty air cleaner.
- Poor grade fuel.
- Return fuel line blocked, bent or squeezed together.
- Fuel pump malfunctioning.
- Engine over fueled.
- (These are some of the most common causes--could be a number of things).

Proper action
- Continue run (only if smoke does not become overly excessive and intensly black).
- Keep your eyes on it.
- Pull into first truck stop or place where you can phone your maintenance department for instruction as to whether or not they want you to keep going or not.

Problem 13

You hear dull thud in time with wheel revolutions

Possible system(s) involved--tires and wheels

Probable cause
- Flat or underinflated tire.
- Loose wheel or tire lugs.

- Rock between duals.
- Bent rim.

Proper action

- Stop at once (first available place to pull vehicle off road)
- Check tires.
  - If flat or if rim bent--change (if permitted).
  - If not, call for assistance.
- Loose lugs--tighten.
- Rock between duals--remove.

5. SUMMARY (10 minutes)

A good troubleshooter

- Knows his vehicle and it's systems
- Drives with a high degree of awareness
- Is familiar with his company's maintenance policy
- Does not attempt to make repairs for which he is not trained.
- Keeps good records.
- Uses common sense.

Allow students time to ask questions concerning the diagnosing and reporting malfunctions.

	IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
1.	Ammeter shows continuous maximum charge	Electrical	Short circuit in wiring	Disconnect battery terminal until short has been repaired
			Points in voltage regulator or cutout sticking	Have mechanic repair
2.	Ammeter shows discharge with motor running	Electrical	Loose connection or short in wiring ,	Tighten connection
			Battery installed wrong	Reverse battery leads
			Burned out or improperly adjusted generator or alternator	Have replaced or repaired by mechanic
			Loose or broken alternator	Replace or tighten belt
3.	High engine temperature	Cooling	Low water level	Shut off engine. Allow to cool to normal. Add water.
			Frozen radiator	Cover radiator, run motor slowly, add water as needed.
			Broken fan belt	Replace fan belt
			Retarded water or oil circulaton	Have checked and repaired by mechanic
			Defective fan clutch or shutters	Have checked and repaired by mechanic
4.	Coolant, oil of fuel dripping	Cooling, Lubricating, or Fuel System	Check for source of leak	Have repaired by mechanic
5.	Guage reading out of proper range		Check the system that the guage refer to	Have mechanic check guage and appropriate system

IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
6. Excessive exhaust smoke	Exhaust or turbo system	Air cleaner dirty Poor grade fuel Return fuel line blocked, bent or squeezed together Engine over-fueled Fuel pump malfunctioning	Clean filter Let mechanic check
7. Black exhaust smoke	Engine, fuel system	Overrich mixture due to - restricted air supply - poor fuel spray distribution - improperly adjusted fuel control racks or - overloading or lugging the engine	Clean or change filters Let mechanic check Shift to lower gear to keep engine speed up [illegible]
8. White (sometimes grey) exhaust smoke	Engine, fuel system	Due to incomplete combustion in cold engine. Should clear up when engine warms. If it doesn't, look for misfiring due to - Worn injector spray holes - Low cylinder compression - Faulty cooling system - Low fuel volatility	Have mechanic check

IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
9. Blue exhaust smoke	Engine, fuel system	Due to the burning of large quanitities of lubricating oil as a result of - Worn intake value guides - Poor oil control ring action - Worn blower shaft seals - Overfilled oil bath air cleaner	Have mechanic check
10. Low oil pressure reading	Lubrication system	Oil has become diluted by fuel or coolant leaks	Let mechanic check
		High oil temperature	Let mechanic check
		Worn oil pump	
		Wrong weight oil for type of weather conditions	Change oil
		Dirty filters	Clean or replace
		Worn bearings	Replace
		Oil and filter needs changing	Change oil and filter
		Oil leak	Let mechanic check
11. Metallic click in time with wheel revolutions	Suspension, wheels or tires	Wheel loose on axle	Tighten axle nut
		Loose wheel or tire lugs	Tighten lugs
		Piece of metal in tire	Remove metal or change tire
12. Dull thud in time with with wheel revolutions	Wheels and tires	Flat tire	Change tire
		Loose wheel or tire lugs	Tighten lugs
		Rock between duals	Remove rock

	IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
13.	Clanking noise in time with wheel revolutions	Tire on drive train system	Lock rim off tire Loose drive shaft	Change tire Have tightened by mechanic
14.	Dull thud or loud rap in time with motor	Engine	Burned out main or connecting rod bearing Piston slap	Shut off motor. Contact garage for instructions
15.	Air escaping	Tires, air system, braking system	Punctured or damaged Open petcock on air Air lines or fittings leaking Brake application or relay valve sticking Ice on brake valves	Change tire Close petcock Repair lines, tighten or change fittings Apply air to brakes several times Apply heat
16.	Snap or click when starting from dead stop	Drive train system	Loose universal joint bolts Excessive wear in universal joint or differential	Tighten bolts Report to mechanic
17.	Under floor noises	Drive train	Clutch trouble Bad throw-out bearing Bent drive shaft Broken teeth in transmission	Have mechanic check
18.	Whine--harsh with high pitch	Drive train on engine system	Worn accessory drive gears Loose belts	Let mechanic check Tighten belts

	IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
19.	Whine--short with high pitch	Engine	Ball bearing spinning in housing	Have mechanic check
			Generator or alternator malfunctioning	
			Water pump malfunctioning	If water pump, shut off engine immediately
20.	Clicking sound in engine with loss of power, sluggishness and overheating	Engine	Broken valve spring Worn timing gear	Have mechanic check
21.	Sudden loss of power	Brake, drive train, engine or fuel system	Brakes dragging	Have adjusted by mechanic
			Clutch slipping	Have adjusted by mechanic
			Spark plug wire disconnected	Replace wire
			Overheated engine	Determine cause of overheating and remedy
			Vapor lock	Let cool
22.	Engine surges	Fuel or engine system	Air in fuel system Worn gear on fuel pump Throttle linkage loose Low fuel supply Buffer screw not properly set	Have mechanic check
23.	Brakes grab	Braking system	Grease on brake lining	Have grease removed by mechanic
			Improperly adjusted brakes	Have readjusted by mechanic

IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
24. Brakes don't hold	Braking system	Brakes out of adjustment	Have readjusted by mechanic
		Grease on linings	Have removed by mechanic
		Water or ice on linings	Drive short distance with hand brake set
		Low air pressure	Check for air leaks
		Air tanks full of oil or water	Bleed air tanks
		Master cylinder low on fluid	Fill master cylinder
		Worn brake linings	Have replaced by mechanic
		Hydraulic line broken	Repair or install new line
		Broken air line or fitting leaking	Repair or install new air line or fitting
25. Constant pull to right or left on steering	Tires, suspension, braking or steering system	A soft tire	Repair or change it
		A broken spring	Drive carefully until it can or repaired
		One front brake tight	Adjust or have adjusted by a mechanic
		Misadjusted tandem or front axle alignment	

	IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
26.	Vibration in engine	Engine system	One or more cylinders not firing, caused by defective spark plugs, shorted spark plug wires, or wires off spark plus	Change plugs or make necessary adjustments
			Sticky valve	Have repairs made by mechanic
			Broken valve	
			Blown cylinder head gasket	
			Vibration damper loose or worn	
			Unbalanced or damaged fan	
			Engine mounting loose or worn	
			Engine out of line in frame	
			Clutch out of balance	
			Drive line out of balance or line	
			Bad injectors	
27.	Vibration in steering in time with rotation of wheels	Tire, wheel or rim	Wheels out of balance	Have adjustments made by mechanic
			Bubble on side of tire	Change tire
			Broken lock rim on tire	Change tire
			Bent wheels or rims	Change tire
			Uneven tire wear caused by other defects	Have defects remedied by mechanic
			Tire mounted on wheel incorrectly	Loosen tire lugs and tighten evenly
			Loose wheel lugs, broken studs	Tighten lugs, have broken studs replaced

	IF YOU SEE	SYSTEM AFFECTED	WHAT TO LOOK FOR	WHAT TO DO
28.	Gradual loss of power	Fuel or engine system	Fuel filter dirty or clogged	Clean or replace
			Throttle linkage worn	Let mechanic check
			Air filter clogged	Clean filter
			Fuel pump gear worn	Let mechanic check
			Dirty air filter	Clean or replace
			Cam lobes worn	Clean or replace
			Faulty valve	Let mechanic check
29.	Burning rags	Drive train, engine, or brake system	Overheated engine	Remedy cause
			Clutch slipping (engine will race)	Have adjusted by mechanic
			Hot or dragging brakes	Have adjusted by mechanic
			Hand brake not released	Release brake
30.	Burning rubber	Braking system, tire or electrical system	Tire on fire	Extinguish immediately and remove from vehicle
			Hot or dragging brakes	Have adjusted by mechanic
			Short circuit in wiring	Disconnect battery terminal
			Belt slipping or frozen pulley bearing	Tighten or replace
31.	Diesel fuel oil	Fuel systems	Any leaks in system	Have repaired by mechanic
32.	Burning oil (May also smell like burning rags)	Lubrication or engine system	Oil dripping on exhaust manifold or pipe	Find source of oil leak wipe off excess oil
			Overheated engine	Ascertain cause of overheating and repair or have repaired
33.	Exhaust odor		Cracked manifold Loose connection in exhaust system Leaking muffler Improperly located tail pipe	Have repaired by mechanic Keep cab well ventilated until repairs have been made

Driver Awareness

A Driver Must Be Aware of the Condition of His Vehicle at All Times. This Is Done by Constantly Staying Alert and by Using Your Senses:

Seeing

Hearing

Feeling

Smelling

To Detect Danger Signals Given Off by the Vehicle's Different Systems

Early Detection of Malfunctions

Early Detection of Malfunctions Results In:

- Lower Maintenance Expense
- Minimum Downtime
- Fewer Accidents
- Longer Vehicle Life
- Lower Operating Cost

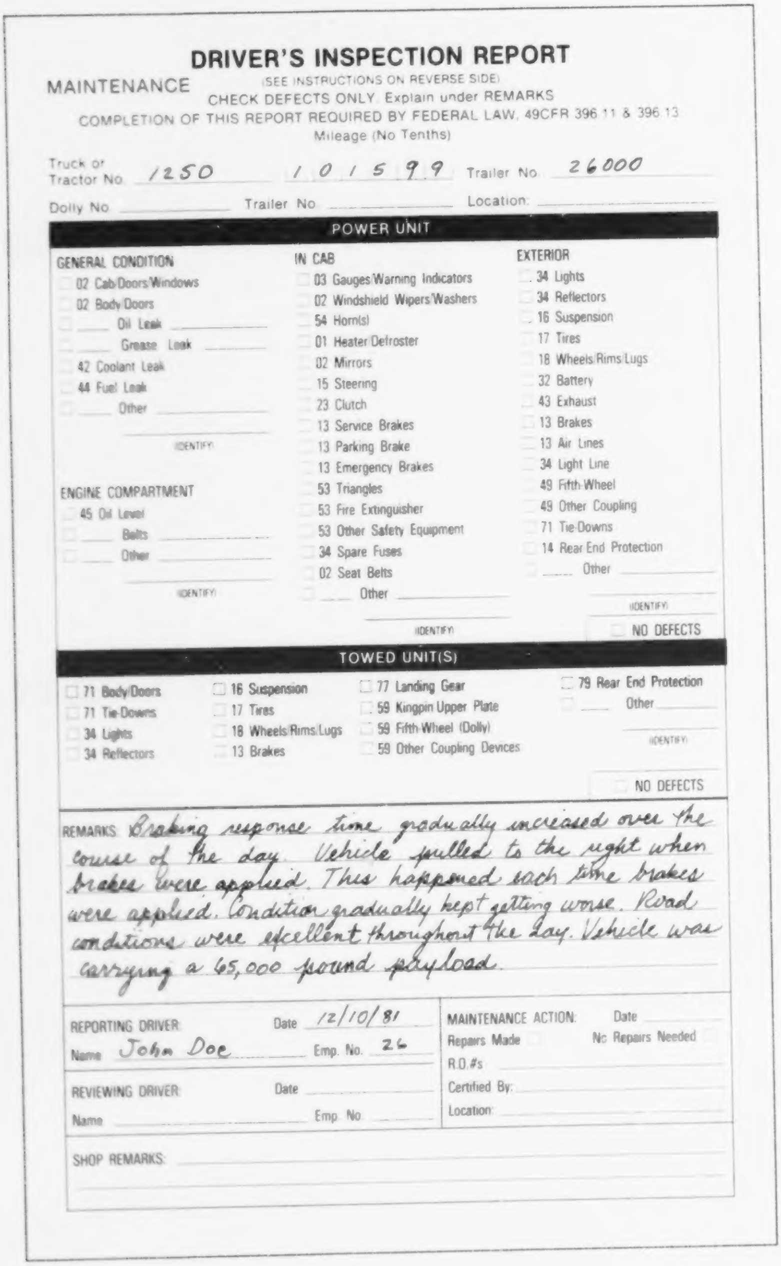
Visual 3

Driver Responsibilities

- To Know Company Maintenance Policy
- Identify Sources of Malfunction
- Diagnose and Fix Simple Problems, When Policy Permits
- Report Symptoms Accurately

Visual 4

Daily Vehicle Condition Report Form "Correctly Filled Out"



DRIVER'S INSPECTION REPORT

MAINTENANCE
(SEE INSTRUCTIONS ON REVERSE SIDE)
CHECK DEFECTS ONLY. Explain under REMARKS
COMPLETION OF THIS REPORT REQUIRED BY FEDERAL LAW, 49CFR 396 11 & 396 13
Mileage (No Tenths)

Truck or Tractor No. 1250 1 0 1 5 9 9 Trailer No. 26000

Dolly No. ______ Trailer No. ______ Location: ______

POWER UNIT

GENERAL CONDITION
- ☐ 02 Cab/Doors/Windows
- ☐ 02 Body/Doors
- ☐ ____ Oil Leak ______
- ☐ ____ Grease Leak ______
- ☐ 42 Coolant Leak
- ☐ 44 Fuel Leak
- ☐ ____ Other ______ (IDENTIFY)

ENGINE COMPARTMENT
- ☐ 45 Oil Level
- ☐ ____ Belts ______
- ☐ ____ Other ______ (IDENTIFY)

IN CAB
- ☐ 03 Gauges/Warning Indicators
- ☐ 02 Windshield Wipers/Washers
- ☐ 54 Horn(s)
- ☐ 01 Heater/Defroster
- ☐ 02 Mirrors
- ☐ 15 Steering
- ☐ 23 Clutch
- ☐ 13 Service Brakes
- ☐ 13 Parking Brake
- ☐ 13 Emergency Brakes
- ☐ 53 Triangles
- ☐ 53 Fire Extinguisher
- ☐ 53 Other Safety Equipment
- ☐ 34 Spare Fuses
- ☐ 02 Seat Belts
- ☐ ____ Other ______ (IDENTIFY)

EXTERIOR
- ☐ 34 Lights
- ☐ 34 Reflectors
- ☐ 16 Suspension
- ☐ 17 Tires
- ☐ 18 Wheels/Rims/Lugs
- ☐ 32 Battery
- ☐ 43 Exhaust
- ☐ 13 Brakes
- ☐ 13 Air Lines
- ☐ 34 Light Line
- ☐ 49 Fifth Wheel
- ☐ 49 Other Coupling
- ☐ 71 Tie-Downs
- ☐ 14 Rear End Protection
- ☐ ____ Other ______ (IDENTIFY)

☐ NO DEFECTS

TOWED UNIT(S)

- ☐ 71 Body/Doors
- ☐ 71 Tie-Downs
- ☐ 34 Lights
- ☐ 34 Reflectors
- ☐ 16 Suspension
- ☐ 17 Tires
- ☐ 18 Wheels/Rims/Lugs
- ☐ 13 Brakes
- ☐ 77 Landing Gear
- ☐ 59 Kingpin Upper Plate
- ☐ 59 Fifth Wheel (Dolly)
- ☐ 59 Other Coupling Devices
- ☐ 79 Rear End Protection
- ☐ ____ Other ______ (IDENTIFY)

☐ NO DEFECTS

REMARKS: Braking response time gradually increased over the course of the day. Vehicle pulled to the right when brakes were applied. This happened each time brakes were applied. Condition gradually kept getting worse. Road conditions were excellent throughout the day. Vehicle was carrying a 65,000 pound payload.

REPORTING DRIVER: Date 12/10/81
Name John Doe Emp. No. 26

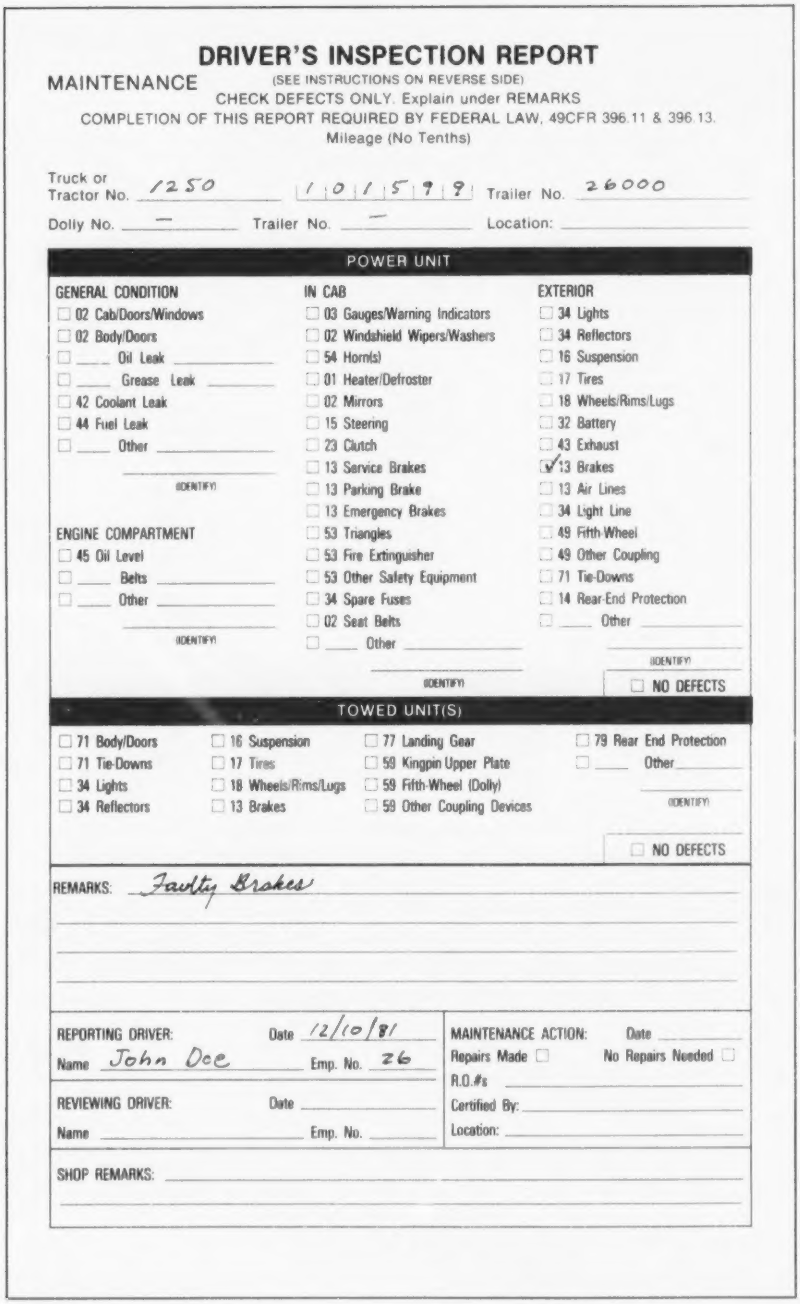
REVIEWING DRIVER: Date ______
Name ______ Emp. No. ______

MAINTENANCE ACTION: Date ______
Repairs Made ☐ No Repairs Needed ☐
R.O.#s ______
Certified By: ______
Location: ______

SHOP REMARKS: ______

Visual 5

Daily Vehicle Condition Report Form "Incorrectly Filled Out"



DRIVER'S INSPECTION REPORT

MAINTENANCE (SEE INSTRUCTIONS ON REVERSE SIDE)
CHECK DEFECTS ONLY. Explain under REMARKS
COMPLETION OF THIS REPORT REQUIRED BY FEDERAL LAW, 49CFR 396.11 & 396.13.
Mileage (No Tenths)

Truck or Tractor No. 1250 | 1 | 0 | 1 | 5 | 9 | 9 | Trailer No. 26000

Dolly No. — Trailer No. — Location: ______

POWER UNIT

GENERAL CONDITION
- ☐ 02 Cab/Doors/Windows
- ☐ 02 Body/Doors
- ☐ ___ Oil Leak ______
- ☐ ___ Grease Leak ______
- ☐ 42 Coolant Leak
- ☐ 44 Fuel Leak
- ☐ ___ Other ______ (IDENTIFY)

ENGINE COMPARTMENT
- ☐ 45 Oil Level
- ☐ ___ Belts ______
- ☐ ___ Other ______ (IDENTIFY)

IN CAB
- ☐ 03 Gauges/Warning Indicators
- ☐ 02 Windshield Wipers/Washers
- ☐ 54 Horn(s)
- ☐ 01 Heater/Defroster
- ☐ 02 Mirrors
- ☐ 15 Steering
- ☐ 23 Clutch
- ☐ 13 Service Brakes
- ☐ 13 Parking Brake
- ☐ 13 Emergency Brakes
- ☐ 53 Triangles
- ☐ 53 Fire Extinguisher
- ☐ 53 Other Safety Equipment
- ☐ 34 Spare Fuses
- ☐ 02 Seat Belts
- ☐ ___ Other ______ (IDENTIFY)

EXTERIOR
- ☐ 34 Lights
- ☐ 34 Reflectors
- ☐ 16 Suspension
- ☐ 17 Tires
- ☐ 18 Wheels/Rims/Lugs
- ☐ 32 Battery
- ☐ 43 Exhaust
- ☑ 13 Brakes
- ☐ 13 Air Lines
- ☐ 34 Light Line
- ☐ 49 Fifth Wheel
- ☐ 49 Other Coupling
- ☐ 71 Tie-Downs
- ☐ 14 Rear-End Protection
- ☐ ___ Other ______ (IDENTIFY)

☐ NO DEFECTS

TOWED UNIT(S)

- ☐ 71 Body/Doors
- ☐ 71 Tie-Downs
- ☐ 34 Lights
- ☐ 34 Reflectors
- ☐ 16 Suspension
- ☐ 17 Tires
- ☐ 18 Wheels/Rims/Lugs
- ☐ 13 Brakes
- ☐ 77 Landing Gear
- ☐ 59 Kingpin Upper Plate
- ☐ 59 Fifth-Wheel (Dolly)
- ☐ 59 Other Coupling Devices
- ☐ 79 Rear End Protection
- ☐ ___ Other ______ (IDENTIFY)

☐ NO DEFECTS

REMARKS: Faulty Brakes

REPORTING DRIVER: Date 12/10/81
Name John Doe Emp. No. 26

REVIEWING DRIVER: Date ______
Name ______ Emp. No. ______

MAINTENANCE ACTION: Date ______
Repairs Made ☐ No Repairs Needed ☐
R.O.#s ______
Certified By: ______
Location: ______

SHOP REMARKS: ______

LESSON 2 EMERGENCY STARTING PROCEDURES (LAB)

Overview

Time Allotted: 1 hour

Prerequisites: Unit 4.3, Lesson 1

Purpose:

The purose of this lesson is to enable students to observe correct starting procedures for vehicles that have dead batteries or have lost air pressure (air started equipped vehicles).

Materials

Instructional Aids

None

Student Material

Procedures for Jump Starting Checklist, in Unit 4.3 of Student Manual

Instructor Material

Procedures for Jump Starting Checklist (at end of this lesson)

Equipment

Two tractor-trailers, both with electrical starters

Electrical jumper cables

One tractor-trailer, equipped with an air starter

Extra tractor equipped with an air starter or (optional) a stationary or mobile air compressor unit to supply compressed air

Facilities

Lesson should take place on driving range

Content

Activity or Topic	Approximate Ti
1. JUMP STARTING DEAD BATTERIES	30 minutes
2. STARTING VEHICLES EQUIPPED WITH AIR STARTER-- NO AIR PRESSURE	30 minutes
	1 hour

1. JUMP STARTING DEAD BATTERIES (30 minutes)

Purpose

The purpose of this lesson is to familiarize students with procedures involved in jump starting a vehicle with a dead battery.

Range Layout

No specific layout required.

Directions

1. The exercise will last approximately 30 minutes.
2. Class will be divided into small groups. The groups will be small enough so each student can easily observe the demonstration.
3. Instructor will demonstrate the proper procedure for jump starting a battery, with full explanations of each step.

Procedures for Dead Battery Starting

Observe Safety Precautions

Shield eyes or wear safety goggles.
Don't smoke.
Make sure batteries are negatively grounded and carry same voltage (e.g., 12 volt charging 12 volt).
Do not get battery acid on skin or clothing.
Never jump start if battery fluid is frozen.

Prepare Vehicle

Align vehicles (do not let vehicles touch each other).
Set parking brakes and chock wheels.
Place manual transmission in neutral.
Add distilled water to battery if needed.

Hook-Up

Clamp one cable to positive (+) pole of dead battery.
Clamp cable's other end to positive pole of booster battery.
Connect second cable to negative (-) pole of booster battery.
Attach other end to stalled trucks frame or block as a ground.
Start booster truck.
Start disabled truck.
Remove cables in reverse order.

Allow time for students questions.

2. STARTING VEHICLES EQUIPPED WITH AIR STARTER--NO AIR PRESSURE (30 minutes)

Purpose

The purpose of this lesson is to familiarize students with procedures involved in starting a vehicle equipped with an air starter when all air pressure has been lost.

Range Layout

No specific layout required.

Directions

1. The exercise will last approximately 30 minutes.
2. Class will be divided into small groups. The groups will be small enough so each student can easily observe the demonstration.
3. Instructor wil demonstrate the proper procedures for starting a vehicle equipped with an air starter when all air pressure has been lost, with full explanation of each step.
4. Instructor can use either: Stationary or mobile air compressor or another tractor for the air supply.

Procedures For Starting Vehicle With Air Starter--No Air Pressure

Prepare Vehicle

Align vehicle with a charged air supply.

Hook-Up

Compressor
Hook up an air line from compressor to the glad hand of the disabled vehicles air reservoir.
Fill reservoir.
Start disabled tractor.
Using another tractor.
Hook up an air line from one reservoir to the other.
Start the booster tractor.
Fill empty air reservoir on disabled vehicle.
Start disabled tractor.

Allow time for students questions.

Notes:

PROCEDURES OR JUMP STARTING DEAD BATTERIES

Observe Safety Precautions

1. Shield eyes or wear safety goggles
2. Don't smoke
3. Make sure batteries are negatively grounded and carry same voltage (e.g., 12 volt charging 12 volt)
4. Do not get battery acid on skin or clothing
5. Never jump start if battery fluid is frozen

Prepare Vehicle

1. Align vehicles (do not let vehicles touch each other)
2. Set parking brakes
3. Place transmission in neutral
4. Add water to battery if needed

Hook-Up Jumper Cables

Steps must be taken in order

1. Clamp jumper cable to positive pole of dead battery.
2. Clamp other end of the same cable to positive pole of booster battery.
3. Connect second cable to negative pole of booster battery. Be careful that the two cables don't touch each other.
4. Attach other end of second cable to truck frame or block of disabled vehicle, as far away from battery as possible.
5. Start engine of booster truck, wait a few minutes to allow current from booster battery to flow to dead battery.
6. Crank engine of disabled vehicle with clutch disengaged to reduce load on cranking motor.
7. When disabled vehicle is started, immediately remove jumper cables carefully in reverse order of how they were put on.

NOTE: Care must be taken to identify negative ground systems before attempting to use these procedures. If this is not done, serious damage to a vehicles alternator could result.

PROCEDURES FOR STARTING VEHICLE WITH AIR STARTER--NO AIR PRESSURE

Prepare Vehicle

Align vehicle with a charged air supply.

Hook-Up

Using a Compressor

1. Hook up an air line from compressor to the gladhand of the disabled vehicles air reservoir
2. Fill reservoir
3. Start disabled tractor

Using Another Tractor

1. Hook up an air line from one reservoir to the other
2. Start the booster tractor
3. Fill empty air reservoir on disabled vehicle
4. Start disabled tractor

SECTION 5
NONVEHICLE ACTIVITIES

SECTION 5

NONVEHICLE ACTIVITIES

This section is designed to prepare students to handle those responsibilities of a tractor-trailer driver that do not involve operating the vehicle. It consists of the following units:

Unit 5.1 - Handling Cargo--To enable students to develop the ability to handle cargo safely and efficiently, including proper weight distribution and securement of cargo on the vehicle.

Unit 5.2 - Cargo Documentation--To enable students to handle cargo documentation responsibilities, such as properly preparing bills of lading, checking for proper freight count and packaging. The basic requirements of hazardous materials are also covered.

Unit 5.3 - Hours of Service Requirements--To enable students to understand the basic concepts and requirements of the Federal Motor Carrier Safety Regulations - hours of service to drivers, and to develop their ability to maintain proper and accurate driver's daily log books.

Unit 5.4 - Accident Procedures--To enable students to understand procedures for protecting the scene, rendering assistance including first aid, fire fighting, and obtaining essential information. Covers legal requirements and how to report accidents properly.

Unit 5.5 - Personal Health and Safety--To enable students to recognize the basic on-duty and off-duty health and safety requirements for driving a tractor-trailer. Use of personal protective gear in handling cargo and safe lifting procedures are some of many subjects covered.

Unit 5.6 - Trip Planning--To enable students to plan safe and efficient routings from point to point, secure necessary trip permits from states, and prepare necessary papers and records. Covers how to estimate travel time, fuel needed, money and personal requirements for an extended trip, and size and weight regulations.

Unit 5.7 - Public and Employer Relations--To make students aware of their highly visible and important role in representing the trucking industry, and to develop good relations with the motoring public, the company's customers and the general public. Students are given tips on job qualifications and the job application process.

Notes:

UNIT 5.1
HANDLING CARGO

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UNIT 5.1 HANDLING CARGO

PURPOSE

The purpose of this unit is to enable students to understand the basic theory of cargo weight distribution, cargo securement on the vehicle, cargo covering and techniques for safe and efficient loading/unloading in the classroom followd by practical demonstration and practice.

OBJECTIVES

Performance Objectives

Students must be able to load and unload cargo efficiently so as to ensure safety to themselves, the vehicle, the cargo, and others.

Students must

- load and unload cargo safely and efficiently.
- ensure that the weight and distribution of the load meet requirements of safety and legality.
- secure loads properly.
- mount placards when carrying hazardous materials.

Knowledge Objectives

Students must know

- procedures for unloading and loading.
- procedures for securing cargo, including methods of blocking, bracing, packing, stacking; and use of straps, rope, cable, chains and chain binders for tiedown to prevent damage and accidents.
- the nature, function, and operation of common cargo handling equipment, including pallets, jacks, dollies, handtrucks, forklift trucks, nets, slings, rug poles, Johnson bars, and other equipment.
- categories of hazardous materials, the need for specialized training to handle hazardous materials, and placard and other paperwork requirements.
- Federal and State regulations on loading, weight limits, and distribution of cargo.
- the consequences of improper loading and unloading, overloading, and improper weight distribution.
- categories of and procedures for handling unstable freight.

Skill Objectives

Students must be able to

- safely operate common types of cargo handling equipment.
- select proper sizes of chain, cable, nylon webbing, steel strapping or rope.
- secure chains, cables, webbing, strapping correctly and tie appropriate knots
- block and brace cargo properly.

Attitude Objectives

Students must believe that

- proper handling and securing of cargo is necessary for the protection of the cargo, other road users, the vehicle, the driver, and the employer.
- it is the driver's responsibility to assure that cargo is properly handled.

LESSONS

Lesson 1.	**Basic Cargo Handling Procedures and Requirements (Classroom)**	**3 hours 30 minutes**
Lesson 2.	**Techniques for Loading, Securing and Unloading Cargo (Classroom)**	**1 hour 30 minutes**
Lesson 3.	**Demonstration of Cargo Securement (Lab)**	**2 hours**
Lesson 4.	**Observation of Cargo Handling Operations (Lab)**	**2 hours***

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* Optional

LESSON 1 BASIC CARGO HANDLING PROCEDURES AND REQUIREMENTS (CLASSROOM)

Overview

Time Allotted: 3 hours 30 minutes

Prerequisites: Unit 1.1

Purpose:

The purpose of this lesson is to explain principles of weight distribution, methods of cargo securement, State and Federal regulations governing cargo handling, the special requirements of unstable and hazardous materials loads, and the consequences of improper cargo handling. The lesson will end with a short problem solving exercise to apply the principles discussed.

Materials

Instructional Aids

Visuals 1 - 36

Student Material

Copy of the Federal Motor Carrier Safety Regulations, Parts 390-397

Driver Responsibilities for Checking Securement of Cargo, in Unit 5.1 of Student Manual

Copy of J.J. Keller and Associates "Driver's Pocket Guide to Hazardous Materials - Compliance with Materials Transportation Bureau and Bureau of Motor Carrier Safety Regulations on Hazardous Materials and Waste" (or similar type of a simplified version of Title 49 Code of Federal Regulations - Parts 100-177). There are several other suppliers of such material - Consult list of Training Aids in this Manual.

Cargo Handling Responsibilities and Safety Tips

Instructor Materials

Copy of the Federal Motor Carrier Safety Regulations, Parts 390-397

Copy of J.J. Keller and Associates "Driver's Pocket Guide to Hazardous Materials - Compliance with Materials Transportation Bureau and Buruea of Motor Carrier Safety Regulations on Hazardous Materials and Waste" (or similar type simplified version of Title 49 Code of Federal Regulations - Parts 100-177. There are several other suppliers of such material - Consult list of Training Aids in this Manual.

Copies of your State (and several surrounding States) regulations on commercial vehicle size, length and weight, as well as cargo covering and/or securement requirements

Content

Activity or Topic	Approximate Time
1. THE IMPORTANCE OF PROPER CARGO HANDLING	20 minutes
2. PRINCIPLES OF WEIGHT DISTRIBUTION	30 minutes
3. PRINCIPLES AND METHODS OF CARGO SECUREMENT	1 hour 30 minutes
4. HANDLING HAZARDOUS MATERIALS	25 minutes
5. PROBLEM SOLVING DISCUSSION	45 minutes
	3 hours 30 minutes

1. THE IMPORTANCE OF PROPER CARGO HANDLING (20 minutes)

NOTE: Since there are a wide variety of loads and methods of loading, securing, unloading cargo, only basic principles, equipment, methods and regulations are covered in Unit 5.1. Specialized and/or specific training must be given by the employer on the job. Only they will know special requirements of specific cargo and its securement.

Visual 1 Cargo Handling

Overview

There is a wide variety of cargo, handling equipment, and different types of trailers for different types of cargo, e.g., refrigerated loads, dry freight on vans or flatbeds, specialized types of trailers for bulky items such as factory machinery.

Driver must know
  How to load, and unload each type of cargo assigned to him/her.
  How to tie down and secure each type of cargo assigned to him/her.

Major Consequences of Improperly Loaded or Secured Cargo

Cargo can be lost or damaged.
Vehicle can be damaged by overload.
Vehicle handling becomes difficult.
Other highway users hit by loose cargo objects.
Improperly secured cargo can break through cab and kill driver during rapid stop or accident.

What Driver Will Do on the Job

Loading/Unloading Cargo

Duties depend on company rules.
May have no actual responsibilities especially with large companies or for vans already loaded and locked/sealed.
May actually load/unload assist or supervise loading/unloading.
Driver must recognize following to make sure it's done right.
  safe loading/unloading practices.
  how to avoid overloading or improperly distributing weight.
  how to assure cargo is securely tied down, and covered.
Driver assumes responsibility for safety of cargo once he/she gets behind the wheel Owner-operator may have total responsibilities for all aspects of cargo handling.

Inspecting the Load

Pretrip inspection, look for
  overload
  poor weight distribution
  damaged, poorly stacked cargo
  improperly secured cargo

Enroute inspection:
- required by law.
- periodically inspect cargo load securement.
- monitor for cargo shifting, damage.
- check load (if possible) through mirrors when driving.
- redistribute weight after partial unloading, make sure load is still balanced.

Visual 2 Federal and State Regulations About Cargo Weight and Securement

Federal, State And Local Regulations

Driver is responsible for knowing/complying with regulations.

Basic Federal Regulations

FMCSR 392.9, Safe Loading (paraphrased below).

Cannot drive or be compelled by carrier to drive if cargo not properly distributed, adequately secured. (FMCSR 393.100-106 specifies means of securement).
- Tailgate, tailboard, doors, spare tires, other equipment must be properly secured.
- Cargo cannot obstruct drivers view, interefere with control.
- Cannot interfere with "ready exit" of drivers, passengers.

Inspect cargo
- Examine cargo and securement within first 25 miles of trip
- Reexamine periodically.
  - After each change of duty status, or
  - After 3 hours or 150 miles (whichever happens first).

NOTE: If cargo sealed, driver not required to inspect (Refer students to Section 392.9 of FMCSR. Allow time for them to read it. Discuss and answer questions).

State Regulations

Two basic types of regulations
- Vehicle weight
  - Limitations on both gross vehicle weight and individual axle weight.
  - State authorities may check weight at any time.
  - Reason: Overloaded vehicles cause severe highway damage and may be unsafe to drive
- Cargo securement and cargo cover
  - Reason: To protect public from loose cargo
  - State regulations vary greatly in this area

Regulations vary from state to state
- Driver must be familiar with regulations, e.g., gross weight, axle weight/length/height/width.
- Check them before driving through a State unless you already know them.

Local Regulations

Cities and counties frequently have their own regulations
Examples: Truck route, Delivery zones, etc.

2. PRINCIPLES OF WEIGHT DISTRIBUTION (30 minutes)

Visual 3 Vehicle Weight Definitions and Principles

Overweight Definitions

Driver responsibility for weight distribution.
- Assures that vehicle not overloaded.
- Weight distributed properly.

NOTE: If driving for larger companies, the driver will not do this.
Weight should not exceed GCWR of vehicle, or individual ratings of various vehicle systems and components.
Weight capacities identified by manufacturer and by government regulations
Definitions related to weight:
- Gross vehicle weight (GVW)--Total weight of vehicle and load, straight trucks.
- Gross combination vehicle weight(GCWR)--Tractor and Trailer
- Axle weight--Amount of weight transmitted to ground by one axle or tandem.
- Bridge load formula--Axle weight limits changed per distance between axle centers.

Do not exceed limitations of manufacturers rated weight per component.
- Tire loads--Each tire has maximum load at specified pressures.
- Suspension system--Rated weight capacity of 1,000 pounds over axle capacity.
- Fifth wheel capacity--Maximum weight it can pull.

Keep gross load under legal limit.
- States always have maximums for GCWR and axle weight.

Keep loads lighter than maximum if trip conditions warrant.
- During extreme operating conditions, do not attempt to load to maximum capacity.
- Full loads may be too much for certain kinds of trips.
  - On-off highway trips
  - Hilly, mountainous type terrain

Distribute weight on tractor-trailer in such a fashion to make good handling of vehicle possible.

Visual 4 Weight Distribution on a Tractor and Trailer

Weight Distribution

Proper distribution of weight on tractor trailer just as important as not overloading it.

Weight Distribution on Tractor

- If distributed improperly causes handling problems
- Weight distribution depends on location of fifth wheel
  - Single rear axle--should be slightly forward of axle
  - Tandem rear axle
    - Stationary fifth wheel--just ahead of tandem axle center line
    - Sliding fifth wheel--last notch of slider adjustment just ahead of tandem center line
  - When fifth wheel moved forward
    - More of load shifted to front axle
    - Can get better cornering and handling
    - Too much of load shifted forward
      - Exceeds legal weight limit on front axle
      - Causes loss of traction in rear axles
      - Can cause hard steering

Weight Distribution on Trailer

- Divide load evenly between front and rear
  - Determine total weight of load
  - Divide in half
  - Put roughly half in front/half in back
  - Spread load evenly over floor and side to side to prevent shifting
  - Determine allowable individual axle weights
  - Adjust load to get weight per axle within allowable limits
  - Sliding rear tandem axles
    - Can be adjusted to shift amount of weight carried by tractor vs. trailer
    - Rear position for maximum weight on tractor drive axle
    - Forward to shift more weight to trailer and off tractor rear axle
- Consider center of gravity when loading
  - High center of gravity of load affects vehicle handling
    - Higher the center, more handling is affected e.g., higher center means more roll on curve
  - Ideal center of gravity for load
    - Located on longitudinal centerline of trailer
    - as low as possible
  - How to keep it low
    - Avoid concentration of load at one point on trailer floor
    - Distribute partial load evenly among axles
    - Put heavy goods on bottom
      - To maintain low center of gravity
      - To avoid damage to lighter goods
- Redistribute weight after vehicle partially unloaded
  - Weight distribution becomes unbalanced after partial unloading
  - Center of gravity often changed, e.g., becomes too high
  - Cargo shifting and unbalanced load results
  - Redistribute load to prevent cargo shifting

Summary

Weight should not exceed maximums, e.g., manufacturer or legal limits
Weight must be distributed evenly
Center of gravity of load should be kept as low as possible
Cargo should be redistributed after partial unloading

Visual 5 Consequences of Overload and Improper Distribution

Consequences of Cargo Weight Overloads/Poor Distribution

Legal Consequences

- Failure to keep weights within limits and distributed evenly results in legal and safety penalties
- State officials weigh truck for gross weight violations and individual weight violations
  - Officer checks for compliance with:
    - GVW or GCWR
    - Axle weight, based on number of wheels per axle, axle spread
    - Other State requirements: length, width, height
      - Must have overload or oversize permit
- Can also conduct full safety compliance inspection
  - Vehicle must be in safe operating condition
  - Many States have safety regulations similar to FMCSR
  - Vehicles can be put "out-of-service" if vehicle components fail inspection, e.g., lights, brakes, coupling system, etc.
  - Can also be grounded for inadequate securement or covering
- Illegal weight subject to fines for:
  - Exceeding GCWR
  - Axle limits exceeded even if GCWR not exceeded
  - Oversize without permits
- Fines based on amount of gross or axle weight overload, a dollar amount escalates for each 1,000 lbs. or fraction
- If necessary to reload or shift cargo to another vehicle
  - Money lost
  - Time lost--waiting for another vehicle or cargo handling equipment

NOTE: Discuss the overload penalties for your State here. More detailed information about weight limitations appear in Unit 5.6.

Safety Consequences

- Overloads affect speed/braking/steering
  - Cannot maintain minimum speed on upgrades
  - Too much speed on downgrades
  - Stopping distance increased
  - Braking capability overloaded, may not be able to stop in time or may fade in emergency braking situation
- Poor weight distribution seriously affects vehicle handling
  - High center of gravity, poor distribution, can cause rollover during turns

        - Too much weight on front axle causes rear axle to lose traction, dangerous in wet conditions
        - Too much weight up front makes steering more difficult

Vehicle Damage Caused by Overload

- Frames, axles and suspensions weakened, damaged or may fail
- Tire damage from overloads
    - Excessive heat
    - Tread breaks
    - Separation
- Coupling devices may fail

Vehicle Damage Caused by Improper Weight Distribution

- Especially damaging to components on overloaded side of vehicle, e.g.,
    - Tires
    - Wheels
    - Suspension

Fuel Economy Affected

- More weight
    - Engines operate most efficiently when pulling the load for which designed
    - Difficult handling
        - Overload affects steering and suspension
        - Increases road resistance
        - Increases fuel consumption

Recap

- Overloads both illegal, unsafe
- Driver may not be responsible for actually loading but is responsible once behind the wheel
- Must recognize and take action when overload or poor weight distribution situation occurs

Visual 6 Student Problem: Vehicles with Improper Weight Distribution

Student Problem Solving Discussion

- Show examples of poorly distributed loads in Visual 6.
    - Ask students to identify how the loads are improperly distributed, what the potential consequences are and how the loads should be redistributed properly

Visual 7 Answer: Loads Properly Distributed

Show Visual 7, which illustrates the same loads properly distributed.

3. PRINCIPLES AND METHODS OF CARGO SECUREMENT (1 hour 30 minutes)

Visual 8 Dangers of Poorly Secured or Covered Cargo

Problems Associated With Improperly Secured or Covered Cargo

Cargo Damaged by Poor Driving Habits

Abrupt changes, stop, start, speed, turn, can cause cargo shift

Cargo Damaged by Excessive Vibrations

Rough roads cause bouncing shifting cargo
Cargo inside of trailer can be damaged
Poorly secured cargo can be damaged by normal vibrations

Cargo Pieces Falling on Roadway

- Direct cause of injury/death
- Indirect cause of accident
  - Blinds car driver
  - Driver trying to avoid cargo on roadway
- Major cause of windshield damage to cars

Cargo Shifting Forward

Heavy loads can crash through rear of cab
Injuries, death to drivers have occurred

Cargo Damaged by Poor Protection from the Elements

Cargo not properly covered can be damaged by weather
Serious economic loss to customer and driver

Cargo Loss During Turnover or Accident

Poorly secured cargo lost or damaged in accident
Serious economic loss
Driver can lose job

Driver Responsibility

Responsible For Securement of Cargo

Must see that:
- Loads are packed securely, i.e., tight, balanced, blocked, braced
- Federal/State laws
- Loose cargo covered

Responsible for Driving Smoothly

- Anticipate conditions, hazards
- Avoid abrupt maneuvers

Stop to Inspect Cargo Securement

- Monitor cargo enroute
  - Check securement after abrupt moves or stretches of rough roads
  - Check periodically when law or company policy requires

Loading Procedure

- Means and methods for securing different commodities vary widely
- Driver must learn requirements on the job from shipper or company
- Steps involved in all loading situations
  - Inspect inside of cargo carrying space before loading
  - Inspect adequacy of packaging before accepting
  - Assure cargo properly stacked
  - Assure adequate blocking, bracing, dunnage used when required
  - Assure tiedown is adequate to load and secure
  - Assure cover adequate and secure if needed

Inspect Cargo Carrying Space Before Loading

- Van trailers
  - Make sure no damage to sides or roof which would allow water leaks on cargo
  - Check for potential damage causing situations tc cargo, e.g., protruding nails, bolts, metal edges, holes in floor, etc.
- Flat bed trailers
  - Make sure deck and flooring adequate
- Flat bed with removable sides
  - Make sure all sideboards in place and properly attached to stakes
  - Stakes properly seated to prevent cargo leakage onto highway and to protect cargo from getting wet

Visual 9 Avoid Cargo Damage

Inspect Packing of Cargo Before Accepting

- Must check packing for:
  - Damaged Cargo
    - Check with company policy
    - Must refuse it or note on shipping papers to avoid liability
    - Refuse:
      - Wet or leaking cargo
      - Cargo that is improperly packed

Improperly Packaged/Crated

Can be damaged enroute or cause damage to other cargo/vehicle

Look for:
- Container not adequate for cargo e.g., items too heavy for container
- Container not properly sealed e.g., cargo can break out in transit
- Cargo loose in container
  - Can be damaged enroute
  - Causes unstable load

Visual 10 Cargo Stacking

Assure That Cargo is Properly Stacked

- Pay attention to container markings, e.g., "This end up", "Fragile"
- Never load heavy freight on light freight, e.g., oil drums with boxes of cookies
- Make sure large heavy items adequately blocked and braced by themselves, e.g., if braced by light cargo, light cargo will be damaged
- Avoid putting weak containers that can collapse on bottom, e.g., cardboard, some plywood, under heavier items
- Don't stack load higher than what is safe for specific product, e.g., instructions say don't stack more than 10 high
- Don't mix incompatible loads unless proper decking, bracing, shoring, plenty of dunnage used, e.g., crated engines with glassware, crated engines must be separately blocked, braced, and glassware protected by dunnage
- If not fully loaded, stagger last bit of cargo like staircase to avoid cargo toppling
- Do not put too many heavy items in one spot
- Manufacturer rates floor space by maximum load per square foot
- If exceeded with heavy cargo can damage trailer floor

EXAMPLE: pallet of steel ingots, even if properly secured, can go through floor after driver hits bump

Visual 11 Examples of Blocking and Bracing Cargo

Assure Adequate Blocking, Bracing, Dunnage Used When Required

- Blocking--Usually wood pieces in front and/or sides of piece to keep it from shifting
  - Cut to fit snugly against cargo
  - Block nailed to deck to prevent movement
- Bracing--Front or side structures of trailer
  - Keep entire cargo from shifting
  - When it is used
    - For heavy cargo or cargo that rolls, e.g., wheeled items
    - When rough roads with much vibration is anticipated
- Tracks--Built into some trailer sides or floors
  - Cargo retainer bars or bulkheads can be snapped into place to act as blocking or bracing

- Federal regulations require blocking/bracing
  - FMCSR 393.100 applies to trucks, truck-tractors, semitrailer, full trailers and pole trailers
  - Each must be "loaded and equipped to prevent the shifting or falling of the cargo", i.e., blocked braced or securely tied down
- Blocking and bracing requirements (if not tied down securely)
  - Must have sides, sideboards or stakes and rear endgate, endboard or stakes
  - "Strong enough and high enough" to assure cargo will not shift
  - Must have no "aperture" large enough to permit cargo in contact to pass through
- Hazards of inadequate blocking/bracing
  - Cargo shifts and falls off vehicle
  - Cargo shifts forward and goes through cab,injures driver
  - Shifting cargo makes vehicle hazardous to drive

NOTE: Students must refer to FMCSR 393.100 for specific detail on blocking/bracing requirements when necessary. Refer students to that section of the FMCSR now. Do not read and discuss, but let them know they might need to use this section in the future if they become involved in securing heavy loads.

- Dunnage offers cargo protection
  - Frequently key to prevention or cargo damage
  - Used to protect cargo from banging into other pieces of cargo
  - Used to fill empty spaces that will not accommodate cargo but if left open other cargo will tilt over

EXAMPLES: Ranges from simple blocks of wood to corrugated cardboard, plywood, plastic sheets

EXAMPLES: Inflatable cargo dunnage made of nylon
Bags inflated with standard air nozzle
Each bag fills space 4" by 8"

Assure Cargo Tie Down is Adequate to Load and Secure

Purpose: Loads tied down and secured to prevent shifting

Flatbed trailers or trailers without sides--Cargo must be secured in all directions to prevent from shifting, falling off

- Closed vans--Tie down just as important to:
  - Prevents shifting, surging cargo that affects ability to handle vehicle
  - Protects inside of trailer, especially rear door, from damage
  - Prevents one piece of cargo from moving causing damage to other cargo or itself
- Keys to cargo tiedown
  - Use proper type and proper strength so as not to damage cargo
  - Use strong enough tiedown device
  - Make sure it is secured properly particularly at pressure points

Federal regulations require that the combined strength of all cargo tie-downs must be strong enough to lift 1-1/2 times the weight of that piece of cargo

Tie down equipment
- Binders--ropes, straps, chains
- Tensioning devices--winches, ratchets, clinching components
- Attachment to vehicle--hook, bolt, rails, rings

Visual 12 Types of Fiber and Synthetic Ropes

Types

- Natural fiber, manmade, fiber (such as nylon)
- Strength of rope determined by type and number of strands
- Driver must know type and strength before using
  - Never use ordinary rope to tie down concentrated loads such as machinery
  - Natural fiber rope affected by moisture and rotting
  - Must be inspected before use

Uses

- To tie down cotton, hay and scrap paper bales and similar type of cargo
- As added tie down to loads secured with straps, e.g., high bulky loads, including cross ties in rear
- To tie down tarps and other cargo coverings

Proper Application

- Tied down on hooks on sides of trailer, if so equipped, or tie down rings
- Do not tie down on or pull across sharp metal edges, load vibration will cause rope to break
- Must know how to tie adequate knots (see Lesson 2 of Unit 5.1)

Visual 13 Types of Wire Rope

Types

- Many types, but all are essentially made up of several twisted strands of wire which are woven around a center core of fiber rope or a woven wire center strand
- Hence the name wire rope - often incorrectly called "cable"
- Compared to fiber and synthetic ropes wire ropes have incredible strength, but they are
  - difficult to attach or "tie-down" - therefore usually only used to secure heavy articles to skids
- Drivers most apt to use wire rope in the form of slings used to pick up heavy articles of freight with a crane for loading/unloading

CAUTION: ALWAYS CHECK manufacturer's rated strength of fiber, synthetic or wire rope. Don't try to guess if you're wrong, you could lose your load or worse your life!

Visual 14 Nylon Web Strapping

Web Strapping

- Made of synthetic material, usually nylon
- Not subject to moisture but can rot in sunlight
- Must be stored when not used to avoid exposure
- Equipped with tightening devices
- Where sharp edges, must use edge protectors to protect strapping from being cut
- Rated capacity indicates strength of load it can hold
  - Light load-500-1,000 lbs
  - General duty loads-1,500-5,000 lbs
  - Heavy loads-5,000-10,000 lbs

Types of Strap Assemblies

- Buckle type
  - Attached to side of vehicle by hooks
  - Tightened similar to seat belts
  - EXAMPLES: Holds together hard to handle cylinders on standing pallet
    - Secures piano, other furniture on moving van
- Offers very graduated degrees of tension on loads. Easy to eliminate all slack

Visual 15 Winch Type Strap and Reel System, Mounted on Side of Vehicle

Winch type

- Hook or ring at end of strap that anchors to vehicle
- Often attached by reel that cranks and stores strap assembly
- EXAMPLES: For tie down of heavy loads, e.g., lumber, plywood, gypsum board, similar commodities

Visual 16 Hand Operated Ratchet Style Strap

Hand ratchet type instructions

- Pull webbing through shaft to eliminate slack
- Operate buckle handle up and down until webbing properly tensioned

Wrench drive type instructions

- Pull webbing through to eliminate slack
- Put wrench on shaft nut and tighten until properly tensioned
- Release tension by screw driver

Advantages/Disadvantages of Web Straps

Advantages

- Variety of uses from securing small loads for shipment, bracing loads in closed vans, tying down heavy loads
- Less expensive than chain
- Easier to store

Disadvantages

- Subject to chafing at corners
- Not as durable as chain
- Not legal for steel machinery or certain metal products

What Driver Must Know About Strap Assemblies

- If strength of assembly, both straps and hooks, is adequate for load
- How to tension down load with type of strap tightening device used
- How to check for potential weaknesses in system
  - At pressure points where straps are subject to chafing
  - Where edge protectors are needed
  - If hooks are secure to vehicle

Visual 17 Steel Strapping

Good for securing boxes, crates and cartons or for securing such items to pallets
Not very good for load tie-down purposes because:

o vibration can cause straps to snap

o no way for driver to adjust them while enroute

o need special tool to remove slack from straps and/or secure straps tools usually owned by shipper and driver has no control over its usage

o strapping must be carefully protected from sharp edges or it will chafe edges or it will chafe in two during transit

o if strapping is at least one inch wide - Federal regulations require at least two pairs of crimps for each seal

o end over end lap joints must have two seals

Visual 18 Tie-Down Chains and Hooks

Chain

- Strongest, most durable means of securing any load in place
- Comes in many different sizes and shapes of links (shorter links are stronger)
- Some chains suitable for cargo tie-down, some are not
  - Driver must select proper chain for the task at hand
- Obviously not all cargo can be chained down - fragile cartons, etc. would be severely damaged by chains

Types of Chain

Chain used for transport can be carbon steel, high tensile carbon steel, and alloy (heat treated) steel

Visual 19 Chain Safe Working Load Limits

All chains have a "safe working load limit" established by the manufacturer.

This must never be exceeded i.e., if you have a chain with safe working load limit (SWLL) of 5,000 pounds and you need to secure a 10,000 pound article, you will need two of these chains to hold it

To determine the SWLL of a chain you must determine the following:

- who the manufacturer is (usually molded into the edge of alternating links).
- size of chain (in the trade they have chain sizes but the so-called size of the chain does not correspond to actual size of the links as one might expect).

EXAMPLES:

Trade Size	Outside Length of Links	Outside Width of Links
"1/4 inch"	1-5/16	7/8
"3/8 inch"	1-3/4	1-1/4
"1/2 inch"	2-3/8	1-11/16
"3/4 inch"	3-1/2	2-1/2

- grade of chain (different chain manufacturers may use slightly different codes but generally the link to the left, as shown in the visual will designate the type of steel and the link on the right will designate the grade of the steel).
- once you have determined these three facts i.e., manufacturer, size of chain, type of steel and grade, you can then consult the manufacturer's rating charts to determine what the SWLL is.
- remember the SWLL does not apply if original hooks have been replaced with hooks that have a SWLL of a lower capacity and/or if chain has been damaged or abused.

How to Inspect

Check hooks for deformation, twists, bends or cracks

Carefully inspect chain links for

- nicks, gouges, chips, cuts, cracks.
- bent or twisted links.
- stretched or distorted links.
- excessive wear or abrasion, especially at the link bearing points.

When in doubt check with your supervisor don't take chances
Remember any chain is only as strong as its weakest link (or hook)

Visual 20 Chain Slings

Used to load and unload heavy cargo
Same SWLL rules as for chain apply
Check slings presented by consignees for unloading carefully - driver could be held responsible if sling breaks and damages cargo
Always stand back as load is being lifted to avoid injury from whipping chain or falling cargo if sling breaks
Never, ever stand under suspended cargo, no matter what the circumstances

Visual 21 Chain Binders

Tightening Devices for Chains

Attached to side of vehicles by tie-down ring on rub rail
Tossed over cargo to other side of vehicle
Chain binders used to remove slack
Chain binders and devices must be rated at same strength as chain (if not provided by manufacturer)
Two kinds of tightening devices on load binders

Lever Type
Pulled down to tighten load and remove slack
Must be used with care as injury to hands could result
Must be secured in place when load tightened so it won't work loose during trip
Can be dangerous when released as lever may snap back to hit person releasing

Visual 22 Ratchet Type Chain Binder

Ratchet Type

Handle pulled a little at a time as ratchet tightens chain
Must also be secured in place when load tightened so it won't work loose
Removable handle type won't work loose, important not to misplace the handle

Load Binder Safety

1. Never ever attempt to operate (lock or release) a load binder while standing on the load.

2. When locking (taking slack out of chain) a load binder always position it so that you pull down on the handle, don't push up - let gravity give you a hand.

3. Whenever more leverage is needed to lock or release a chain binder a piece of pipe may be slid over the handle to increase the leverage. However, be careful to slide the pipe all the way down on the handle so that it doesn't accidently slip off during the process.

4. Be careful when using a pipe extension (called a "cheater bar") not to damage the chain binder.

5. Never, place any part of your body in such a position so that it can be struck by handle as it rotates or flips from the locked to the released position or vice versa.

6. Always have feet firmly planted on the ground at all times because of number 5 above or in case the chain, binder or point of chain attachment should break.

Visual 23 Example of Regulations Related to Binder Strength

Government Regulations Regarding Chain Binder Strength and Tie Down

Federal regulations require binders to be rated 1-1/2 times load, e.g., 5000 lb. load requires binder rated at 7500 lbs.
One tie down for every 10 feet of cargo space
State laws must be complied with
EXAMPLE: California rates chains at 80 percent of manufacturer break strength rating
Accepts webbing strap ratings at 50 percent of manufacturers rating
Entire system must be adequate to load
System only as strong as weakest link
Each component must be rated sufficient to hold load
If not, use lowest rated part of system
EXAMPLE: Chain rated at 20 tons break strength coupled with chain binders that are rated just as high
Attached to hook on flat bed which is designed for break strength capacity of one ton
Result: Load not secured
Tie down point will be pulled from mooring when under stress

Visual 24 4 Basic Ways to Chain Down an Item

Many ways to chain down an article but usually only one is correct
Before starting look-think-plan-and then act
Don't make hasty decisions that will make more work, cause freight to fall off, cause an accident, injury or even someone's death
Determine how many chains you will need and where they must be placed to insure article can't move

Remember on a hard brake application or in a crash once an article can get even a small bit of motion it will tend to keep right on going

So - secure it against all motion to begin with and you won't have a problem with any of it attempting "to keep you company" in the cab of the tractor

Visual 25 Heavy Load with Protection

Edge Protectors

Old rubber tire sections or similar material used on cargo edges
Used with chains to protect cargo from damage
Used with straps to protect straps from premature wear

Visual 26 Load Locking Bars in Vans

Securing Freight in Vans

Many vans do not have tie-down devices

Still freight must be secured against movement
- One method is with false movable bulk heads usually of plywood panels
- Another method of securement is with load locking bars or cargo lock hoops which are friction jack operated (as in the visual)
- Rubber feet are placed against trailer walls and jack is operated until bar is tightly wedged in place
- Another system has tracks built into the van walls and straps or bars with special attachments on each end can be located into the tracks to keep freight from moving

Tie-Down Requirements

How many tie-downs is enough?

Usually you can't have too many, but frequently drivers find themselves without enough on hand to do the job
Federal and/or State regulations can be tough on the driver who is traveling without enough

Federal regulations state - you need at least one tie-down for each article more than 8 feet long. This applies to a single item such as a piece of pipe, or group of the same item such as a bunch of pipes bonded together or even a group of different items, if they are bonded or fastened together and handled as a single item

However, you always have to have at least two tie-downs.
If you have a piece of pipe 8-feet long you can't put a tie-down across the center of it and expect that will do the job.
- Two tie-downs are the minimum, but remember to use at least one in every 8-feet.

Front End Protection

Front end header boards ("headache racks") are there for your protection.
Always check them carefully.

Federal regulations require that they:

- o be free of structural defects.
- o be strong enough to support at least half the weight of the load (if trailer were tipped up on its nose).
- o have no holes to allow cargo to penetrate cab area.
- o be at least 4-feet tall or high enough to protect the driver in the cab.

- some fleets elect to mount headache rack on the tractor frame instead of on front of trailer

Visual 27 Covering Cargo

Assure Cover is Adequate and Secure (If Needed)

Reasons for Covering Cargo

- Two basic reasons for cargo covering
  1. Spill protection--to protect public
  2. Cargo protection--to protect cargo

Spill Protection

- Covering required by a variety of State laws
  - Most laws require covering of
    - sand
    - gravel
    - small stone loads
  - Some laws are broader, e.g., Missouri requires covering of "any goods, material or farm products that one may reasonably expect to become dislodged"
- Driver responsibility
  - Know and comply with State laws
  - Secure covering properly and monitor while driving

Cargo Protection

- Many commodities have to be protected from effects of weather
- Wide variety of lightweight specialized tarps to protect different cargos in addition to rubber and cotton canvas
- Two basic types of synthetic tarps
  1. non-breathing--nylon and polyesters used for most commodities Breathing--has sufficient porosity to allow
  2. breathing needed steel hauling canneries, other machinery easily corroded, lasts 2-3 years if properly cared for

Importance of Cargo Covering

- Cargo can be ruined if not covered from weather
- Corrosions and other severe damage more common in winter
- Steel, other metal cargos
  - Highly corrosive if not covered or wrong type of cover
  - Load can become pile of rust in one day
  - Consequence: Shipment refused and trucker loses money
- Company can be forced to pay claims for gross negligence, e.g. not properly covering load in bad weather

Tarp Usage

- Flatbeds
  - Depending on commodity, may have to be tarped
- Ragtops
  - Open van trailer without top
  - Tarp used to cover top
  - Secured by tiedowns with ropes or webbing straps
  - Must be secured properly to prevent wind from getting under

- Flatbeds with removable sidebraces and center bar
  - Tarp draped over center bar like a tent
  - Requires special care tarping

Driver Responsibility for Using and Taking Care of Cargo Covering

- Inspect cargo covering for damage before using
- Ripped, leaky or loose tarp offers little protection to cargo

Visual 28 Use and Care of Tarps

- Put cargo covering on properly and tie it down securely
  - Slip tarp on from front to back
  - Pull back so nose fits snugly
  - Center so it hangs equally
  - Tie it securely with rubber straps or rope
- Protect cargo covering from sharp edges of cargo
  - Example: Sharp edges of machinery can rip tarp
    - Leaks in tarp
    - Machinery is not protected
  - Protect machinery, tarp with padding over sharp edges, e.g., scrap tarp, carpeting, cardboard
    - With proper padding over sharp edges, can tighten down to secure tension
- Get synthetic tarps patched by professionals
  - Difficult job
  - Will bleed and allow leakage if not properly done
  - Get tarps patched by shop or manufacturer
- Monitor tarp while driving

Problems

- Flapping tarp
  - Cause: tarp improperly secured or tarp grommet has ripped out
  - Consequences: damages tarp, does not protect cargo, driver can't see to rear

- Ballooning tarp
  - Wind gets under tarp and causes balooning effect
  - Cause: nose ties are not secure but others are
  - Consequences:
    - Tarp and cargo damaged or ruined
    - May affect steering
    - Entire tarp can be blown off (other tie downs ripped out) and cover windshield of vehicles following

How to Avoid Problems

- Make road checks
  - Check tarp tiedown when making periodic checks of tires, etc.
- Make mirror checks
  - Look for flapping or ballooning tarp, stop and secure
- Avoid ice and snow buildup on ragtops which could destroy tarps

Tarp Storage

When not in use must be folded, rolled, stored properly
  Fold from outer edges inward, rolled from rear to front for ease of use next time
  Stored in tarp holder, not just thrown on frame of trailer

Recap of Information on Cargo Covering

Use proper cargo covering to protect cargo
Inspect for damage or leaks before using
Put on and secure properly
Protect against sharp edges
Get damage repaired by professionals
Monitor when driving
Avoid damaged or ruined cargo and resulting financial loss

Sealed and Containerized Loads

Sealed Loads

Cannot inspect for proper packaging
Can check to make sure load does not exceed GCWR or axle capacity
Two types of seals

1. Company seal
   Make sure seal not broken before accepting load
   Call for instructions if broken

2. Customs seal
   Do not tamper with unless extreme emergency
   If fire or other emergency, get witness (law enforcement officer) to sign statement about conditions under which seal is removed

Visual 29 Integral Type Container and Chassis

Two Basic Types of Containers

Integral containers - usually used in "piggyback" or "fishyback" service
  Usually 20 or 40 feet long by 8 feet wide
  Attached directly to container trailer frame
  Secured by tie down devices or locks

EXAMPLE: Mounted directly onto container frame (chassis) and secured by clevis, clamps, etc.

Visual 30 Nonintegral Type Containers

Nonintegral containers, e.g., 10' trailer body type of container
  Loaded on flatbed-type trailers
  Not directly attached to body
  Must be securely chained down to prevent braking loose in transit
Driver must inspect all types of containers
  Make sure container properly secured to trailer bed or container frame

Identify any overload situation, e.g., don't accept weight logged on shipping papers, check weight on nearest scale, for GCWR and axle weight

Examples of Loading, Securing Some Common Type Loads

Wheeled Items

Most difficult to secure against movement
React strongly to acceleration and braking forces
Chain and block fore and aft
If vehicle put in gearand set brakes,
Use chock blocks fore and aft of all wheels
Chain vehicle against forward, backward, sideways and up and down movement (due to flex in suspension system)

Crates, Sharp Cornered

Can gouge and crush other freight
Cushion with adequate packing
If necessary, chain and chock

Batteries

Load two layers right side up
Put sheets of wood or cardboard between layers
Prevents electrical sparks from starting cable fire
Also follow hazardous material regulations

Reels of Wire

Load spools, reels on their edges
Block on all sides

Cylinders and Tanks

Follow hazardous material regulations
Load standing up
Secure against any movement with chains or web strapping

Fluid in Containers

Stack containers upright
Don't pile too high, e.g., don't exceed instructions for number of containers
Secure with plenty of dunnage

Drums

Stack upright
Cushion on two layers of cardboard or plywood, e.g., heavy drums need plywood
Empty drums
    Stack upright too
    Prevents leakage of remaining contents

Skidded and Palletized Items

Load light pieces against side of truck or trailer body
Heavy ones in middle of unit
When loading number of similar skids
    Stagger from side to side
    Never load straight down the middle
    Always block skids before moving truck
    Tie down if top heavy

Recap

Sole reason for tractor-trailer operator's job is to transport cargo safely, economically and without damage.
Guidelines exist for loading and securing all types of commodities
Much of it is common sense
    Secure load against shifting or falling, e.g., block, brace, dunnage, tie down
    Load heavy items on bottom
    Tie down top heavy loads
    Secure loose cargo from damaging other cargo or vehicle
    Protect edges of cargo from binders when necessary
    Cover cargo when required

Driving Specialized Cargo

Many types of cargo require special training for proper loading and securing techniques.
    Safe methods of driving
Only shipper or carrier has specialized knowledge of cargo
Driver must be trained or insist that load be properly loaded and secured to prevent hazards while driving

Cargo That Can Be Unstable and Hazardous to Drive
- Tanker loads
- Swinging meat
- Live cattle
- Overlength and overwidth loads

Visual 31 Tank Trailers

Tank Types

Liquid and dry bulk

Liquid Types
    Compartmented - has bulkheads (walls) within so that tank becomes in effect 3, 4, 5 or more separate tanks
    Baffled - has several bulkheads that have large holes in them thus liquids can flow from fore to aft but at a reduced rate of speed
    Unbaffled - has no internal structures hence is called a "straight bore" (as in a gun barrel) type

Dry Types

May have 1, 2 or more compartments

May be unloaded by gravity from bottom dump device or by using compressed air to "pump" product out through hoses

Tank Characteristics

Compartmented (Liquid) Types

Must apply basic weight distribution principles when loading and and unloading

Partially loaded tankers can be difficult to drive, especially if loaded or unloaded properly

EXAMPLE: Tanker with 12 separate compartments and 12 different deliveries

Driver unloads first three front compartments on delivery putting too much weight in rear of tanker

Must unload in proper sequence to maintain proper weight distribution and keep stable

Unload rear-most compartment first, forward compartment second, then middle compartment, etc.

Baffled (Liquid) Types

Most wait for liquid to reach its own level after taking on a partial load

Must use caution on turns as liquid can still surge from side to side

EXMAPLE: Driver enters an exit ramp that curves - far to fast and is forced to apply brakes in the curve

Liquid surges sideways and causes rig to overturn - even at 25 mph

Unbaffled (Liquid) Types

Nothing to restrict flow of liquid, thus surge is a real problem on partially loaded trips

These types usually used for transport of food products - sanitation regulations forbid use of baffles because of difficulty in cleaning afterwards

Lack of baffles makes partially loaded tank extremely difficult to drive - must exercise extreme caution to prevent loss of vehicle control even at low speeds

EXAMPLE: Driver stopping for a red light applys brakes and stops - split second later liquid comes forward (like a tidal wave) hits front trailer bulkhead and propels the vehicle right into the intersection

Solution: Drivers must learn how to "set up" for a stop in advance in order to avoid loss of control

Dry Bulk Types

Not subject to liquid surge, but still requires special knowledge

Usually have larger capacity, hence size than liquid tanks

Low to ground cargo discharge devices can be struck on rail crossings or on driveway entrances

High center of gravity, can flip on high speed curves/turns

NOTE: All types of tankers require special knowledge and skills to load/unload as well as to drive

Don't attempt operation without special training

Visual 32 Swinging Meat Loads

Swinging Meat Loads

Partially swinging meat loads on reefer very unstable to drive
Only shipper has special knowledge and equipment to keep load stable during transit
Driver must not accept load unless it is properly secured so vehicle can be safely driven
EXAMPLE: Loads of swinging lamb - high center of gravity - very unstable on sharp curves or exit ramps
Driver must slow way down below normal prior to entering

Visual 33 Live Cattle, Sheep, and Hog Loads

Live Cattle Loads

Can wander around trailer creating very unstable vehicle handling
When less than full load, driver should not accept load unless false bulkheads inserted to crowd cattle to nose of trailer
Will cut down on wandering around and make load safer to drive
EXAMPLE: Loads of cattle must be operated with extreme caution even when packed in fairly tightly - live animals can "lean" on curves easily, cause vehicle instability

Visual 34 Over-Dimension/Over-Weight Loads

Over Length, Width and/or Over Weight Loads

Requires special knowledge and skills
Always require special transit permits from the State(s) Highway Departments
Usually limited to time of day, day(s) of week for travel
May require special equipment i.e., wide load signs, flashing strobe lights, flags
May require police escort or private front and/or rear escort vehicles bearing warning signs and/or roof top flashing lights
Requires special forms of cargo tie-down and/or extra axles, wheels and elevating trailer beds
May require rear steering trailer bogies with a "tillerman" to steer trailer with hydraulic steering system and/or may have a pusher tractor behind for more power
NOTE: Special permit requirements discussed in Unit 5.6

Visual 35 Top Heavy/Odd Shaped Loads

Requires extremely specialized knowledge of blocking and bracing - usually only professional riggers will be knowledgable enough to handle
Requires special driving skills to prevent loss of vehicle control

Recap

Whatever driver called upon to haul must know how it should be handled or find out before accepting assignment
If not, can easily end up in an accident or with cargo tipping vehicle over

4. HANDLING HAZARDOUS MATERIALS (25 minutes)

NOTE: See also Unit 1.3 for inspection; Unit 5.2 for hazardous materials documentation and placarding; Unit 5.4 for accidents and fires involving hazardous materials; Unit 5.5 for special safety equipment for certain types of materials; Unit 5.6 for required trip planning activities related to hazardous materials.

Definition

Any cargo can be hazardous if improperly handled. Only certain cargo is officially designated as hazardous material

Hazardous Materials and Waste

Various items and substances (materials, chemicals, gases, etc.) which the U.S. Government agencies have determined could cause harm or danger to public health and safety when being transported improperly. There are approximately 24 different DOT (transport related) broad types or classifications of hazardous materials all of which have strictly enforceable laws or regulations covering such things as types of containers or packages to be used for shipping, the labeling of the packages and/or the placarding of the vehicles, among other requirements.

CLASSIFICATIONS

BLASTING AGENTS Any material designed for blasting that is not easily detonated, such as ammonium nitrate fuel oil mixuture.

COMBUSTIBLE LIQUID A liquid that can be burned such as furnace oil, also see **flammable liquid.**

CORROSIVE MATERIAL A substance which will eat away or "burn" your skin such as battery acid.

ETIOLOGIC AGENT Items which are likely to cause diseases in human beings who come into contact with them, such as the tissue of a dead animal being shipped for laboratory analysis.

EXPLOSIVES CLASS A An example is dynamite.

EXPLOSIVES CLASS B An example is special fireworks.

EXPLOSIVES CLASS C An example is small arms ammunition.

FLAMMABLE COMPRESSED GAS Any gas (or vapor) usually kept under pressure and easily catches fire such as propane gas used for cooking.

FLAMMABLE LIQUID A liquid that catches fire very easily such as gasoline. Also see **combustible liquid.**

FLAMMABLE SOLID A solid material that catches fire easily such as charcoal.

IRRITATING MATERIAL A liquid or solid material which when exposed to air or fire gives off dangerous or very irritating fumes such as tear gas.

NONFLAMMABLE COMPRESSED GAS A gas (or vapor) usually kept under pressure and does not burn such as nitrogen used in trailer refrigerator systems.

ORGANIC PEROXIDE A substance which is a strong oxidizing agent and fire hazard commonly used in the bleaching of leather.

OXIDIZER A substance which gives off oxygen which makes it a fire hazard such as ammonium nitrate which is used as a fertilizer by farms.

POISON CLASS A Any liquids or gases that are extremely dangerous to human life, an example of which is hydrorganic acid (prussic acid) used in the making of pesticides.

POISON CLASS B Less dangerous poisons than **poison A** but are still dangerous to human health such as arsenic used for pesticides.

RADIOACTIVE MATERIAL Any material which gives off atomic radiation such as fuel in nuclear powered electrical generating plants.

ORM (OTHER REGULATED MATERIAL) Any substance which poses a human health and safety risk and which does not fit any of the other hazardous materials classes. There are 5 classes of ORM which are as follows:

> **ORM-A** Any material which can cause an uncomfortable reaction in human beings exposed to it such as chloroform.
>
> **ORM-B** Any substance which can cause damage to the transport vehicle if leaked during transport such as mercury.
>
> **ORM-C** Any substance which does not fit the ORM-A or ORM-B classification but which makes it unfit for transport unless properly prepared such as bleaching powder.
>
> **ORM-D** Any material packaged in small quantity for consumer use that would otherwise be subject to the hazardous material classifications, but due to the fact it is packaged in small quantities poses a minimum risk, such as small cans of cigarette lighter fluid.
>
> **ORM-E** Any substance which is not included in any of these other hazardous materials classes, but which is subject to the Hazardous Materials Regulations such as some forms of Hazardous Waste such as sludge from manufacturing procedures and Hazardous Substances such as materials used to eliminate fungus.

SPONTANEOUSLY COMBUSTIBLE MATERIAL (SOLID) Any solid substance which, when exposed to air may increase in temperature and/or catch fire, such as wet hay.

WATER REACTIVE MATERIAL (SOLID) Any solid material (including sludges or pastes) which when accidently becomes wet, may catch fire and/or give off unhealthy gases such as magnesium metal used in making car engines.

WASTES, HAZARDOUS Materials that are hazardous which are being shipped to a disposal site or dump, and which requires special shipping manifest papers as required by the U.S. Environmental Protection Agency.

NOTE: Some commodities can fall into more than one classification such as cholrine gas (used in water purification plants) which is both a compressed gas and a Poison Class B.

DANGERS

Hazardous materials or waste, can endanger life of driver, cargo handlers and public
Strict regulations and rules have been devised and must be followed to minimize danger.

Visual 36 Steps in Handling Hazardous Materials

Handling Hazardous Materials

Loading and unloading hazardous material must be done by trained authorized personnel
- Driver must be aware of loading/unloading rules for his own safety
- Can be injured or killed by damaged or leaking containers
- Can be exposed to noxious gases or poisons

Basic rules for loading/unloading hazardous materials
- Follow principles for loading/unloading all cargo
- Pay special attention to additional loading instructions on labelling of hazardous materials, packages, e.g., this end up
- Block and brace or secure from movement

Don't mix incompatible loads
- Charts and truck loading guides available which indicate materials that are not compatible

EXAMPLES: Do not mix Class A explosives with any other hazardous material
Do not mix poisons with food products

Use extreme care in handling packages to avoid damage or spillage
- Could cause fire explosion, or contamination

It is against federal regulations to smoke around hazardous material or when driving hazardous material loads
Do not transfer material from one vehicle to another enroute unless extreme emergency

Inspecting Vehicle Carrying Hazardous Material

Driver responsible for inspecting vehicle carrying hazardous material
Must be taught guidelines for inspecting type of hazardous material by carrier or shipper involved
Must be especially alert for fire hazards, leaking or potentially leaking cargo
Must pay extra attention to tires
Underinflated or worn tires more likely to cause accidents or tire

Assures that shipping paper for hazardous material complete and in order as part of inspection
Affixes placards supplied by shipper to vehicle as part of inspection

NOTE: Cargo documentation for hazardous materials and waste and placarding discussed in Unit 5.2)

Recap

All designated hazardous material and waste require special handling and training.
Do not attempt to handle without that special training
Follow all rules and regulations when dealing with hazardous materials and waste in any manner.

5. PROBLEM SOLVING DISCUSSION (45 minutes)

Instructions

Discuss the following seven situations in order to give students an opportunity to apply principles covered in this lesson.
Present the situation.
List and categorize student answers on the blackboard.

Situation 1

The easy way to load is to save the "heavy" goods for last. The loading crew is doing just that. The tall heavy goods will be concentrated on the rear of the trailer.

Question--What are the consequences? What should you do?

Answers
Load will be poorly distributed
Illegal and unsafe load on rear axles
Damage and wear could occur or rear tires, suspension
Insist that the weight be properly distributed

Situation 2

A closed van is being loaded with mixed freight. About one-third the load consists of cardboard cartons labelled for various destinations. Remainder of load is heavy crated material.

Question--What key points should be kept in mind loading and securing this load?

Answers
All freight should be loaded as much as possible in the order to be delivered
Heavy crates should be placed on the floor of the trailer and chocked and braced as needed to secure from movement
Crates and cartons should be loaded in upright position according to instructions on them

All crates and cartons must be secured against movement and falling-type damage by dunnage, straps, ropes as may be necessary
If load does not come all the way to the rear of the trailer, must be staggered in stairway step fashion to prevent it from falling over

Situation 3

A closed van being loaded with a palletized cargo. It is LTL and will take up about half the space in the van. The trailer will be sealed and no other cargo will be added.

Question--What key points should be kept in mind loading and securing this load?

Answer
Spread load evenly across trailer
Put heavy pallets on bottom
Stagger from side to side
Block and brace load

Situation 4

A full load of plywood sheet bundles is being loaded on a flatbed.

Question--What key points should be kept in mind loading and securing this load?

Answers
Load should be evenly distributed to avoid exceeding GCWR or rated axle weights
Secure load with nylon webbing straps or chains
Edge protectors must be used to protect straps from abrasion or to protect plywood sheets from chain damage
Load needs to be properly blocked and braced
May need cover depending on weather, use of chains
Make sure there is adequate headerboard to prevent load from crashing into driver's compartment if accident or emergency stop
All bundles need to be properly blocked, braced and chained in place
After load is secured, it may need a tarp, depending on whether finished plywood or shipper's requirement for weather protection

Situation 5

A large piece of steel machinery is being loaded on a flatbed.

Question-- What key points should be kept in mind when loading this item?

Answers

Assure that load does not exceed rated GCWR.

Assure that axle weights are not exceeded, e.g., piece of machinery must be placed on trailer by crane so that it is neither too far to right or left or too far forward or to the rear, since no sliding 5th wheel.

Assure that load is not top heavy or too high, i.e., must be shored vertically and, if too high, over 13.6 feet, must be tipped and so blocked and braced.

After load is blocked, braced and chained, it must be covered with tarp.

Situation 6

Driver is pulling a load that is half full with food stuff. His dispatcher instructs him to pick up additional freight. When he stops to pick up that freight, he finds that it is a load of pesticide.

Question--What action should the driver take?

Answer--Foodstuffs cannot be mixed with poisons. Driver must call dispatcher for further instructions.

Situation 7

A driver is making a run from New Jersey to Chicago. He is hauling heavy rolls of steel on a flatbed trailer. When he stops enroute to inspect the cargo, he notes that chains are cutting into the outer edge of the rolls of steel. Also, one of the chains has a broken link.

Question--What should the driver do?

Answer

Driver must call supervisor to get permission to get replacement chain for the broken chain.

Must release chains and insert some type of edge protector to prevent further damage, e.g., piece of tire section, piece of wood, etc.

Visual 1

Cargo Handling

Consequences of Improper Cargo Handling

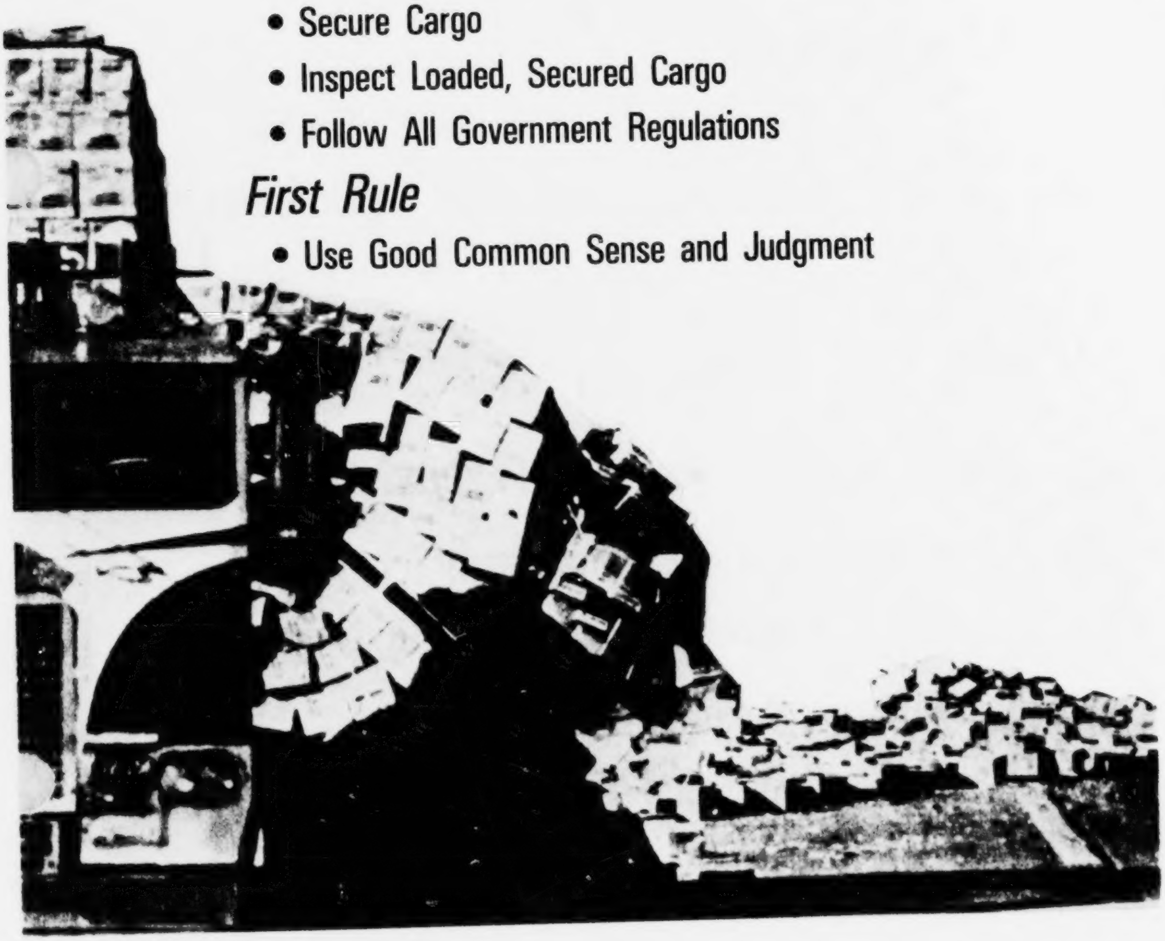
- Accident/Injuries to Self and Others
- Lost/Damaged Cargo
- Difficult Vehicle Handling
- Vehicle Damage

Driver's Responsibilities

- Load/Unload Cargo
- Secure Cargo
- Inspect Loaded, Secured Cargo
- Follow All Government Regulations

First Rule

- Use Good Common Sense and Judgment



Visual 2

Federal and State Regulations About Cargo Weight and Securement

FMCSR 392.9

- Cargo Securement
  - Cargo Must Be Secured
  - Examples in FMCSR 393.100 - 106
  - Cannot Block View or Exit
- Inspection
  - Examine Cargo in First 25 Miles
  - Reinspect Cargo and Securement–If Driver Changes His Duty Status or
    - Drives 3 Hours or
    - Drives 150 Miles

State Regulations–Two Types

- Vehicle and Cargo Weight
  - Know and Comply With Limitations
- Cargo Securement and Cover
  - Know and Comply With Requirements

Vehicle Weight Definitions and Principles

Basic Principles

Do Not Overload Vehicle

Distribute Weight on Vehicle Properly

Factors

- Vehicle Capacity
  - Manufacturer Rating
  - GVW = Allowable Weight of Straight Truck and Load
  - GCWR = Allowable Weight of Tractor-Trailer and Load
- Components Capacity
  - Axle Weight = Amount of Weight Transmitted to Ground by One Axle
  - Tires, Loads, Fifth Wheel and Suspensions Also Rated
- Legal Capacity
  - Legal Capacity Per Vehicle and Axle Load
  - Bridge Weight Formula-Axle Weight Limits Changed Per Distance Between Axle Centers
- Trip Conditions
  - Lighter Loads When Weather Is Bad or for Mountainous Driving

Visual 4

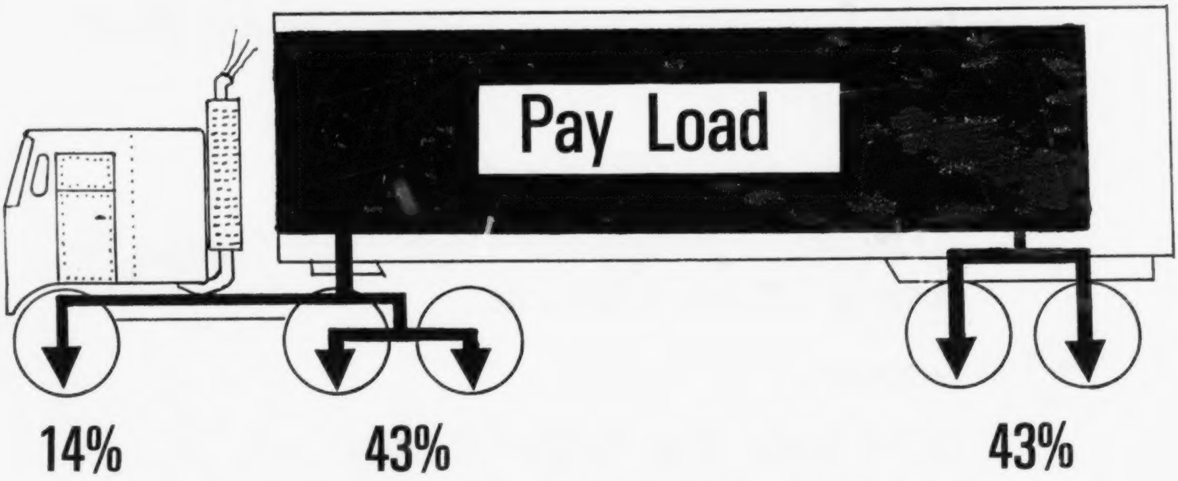
Weight Distribution on Tractor and Trailer

Tractor

- Distribute Weight Properly Over Axles
- Weight Distribution Depends on Position of Fifth Wheel
  - – Single Axle–Slightly Forward of Centerline
  - – Tandem Axle
    - Stationary–Just Ahead of Centerline
    - Sliding–Last Notch of Slider Adjustment
- Fifth Wheel Moved Forward
  - – MORE of LOAD Shifted to Front Axle

Trailer

- Divide Load Evenly Between Front and Rear
- Adjust Load to Meet Axle Weight Limitations
- Keep Center of Gravity Low
  - – Heavy Freight on Bottom
  - – Properly Distributed



Example of a Well Balanced Load

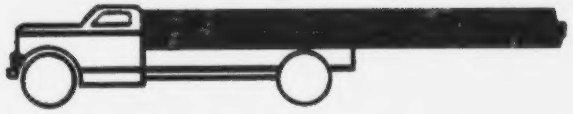
Consequences of Overload and Improper Distribution

- Legal Consequences
  - Costly Fines
  - Pulled Off Road and Impounded Until Excess Weight Removed
- Safety Consequences
  - Too Little Speed Uphill
  - Too Much Speed Downhill
  - Stopping Distance Increased
  - Brakes Overloaded
  - Steering and Control Difficult
- Vehicle Damage
  - Frames
  - Suspensions
  - Wheels and Tires
  - Coupling Devices
- Fuel Economy
  - Suffers if Overloaded

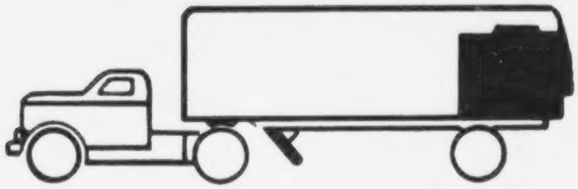
Visual 6

Examples of Improper Weight Distribution

Wrong



Wrong



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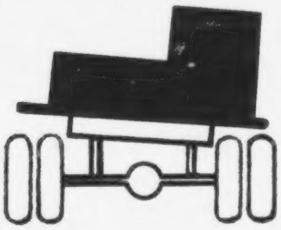

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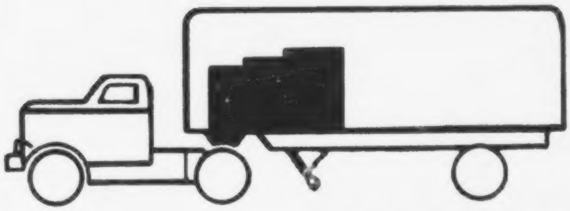

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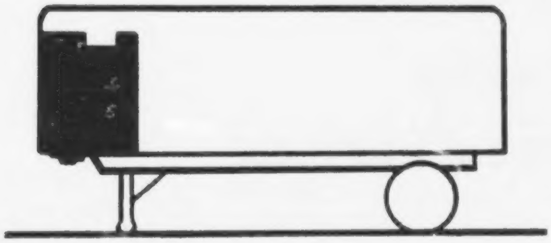
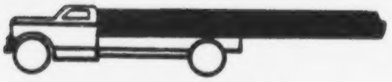
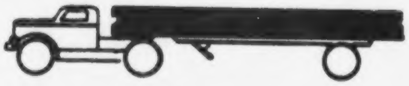


Visual 7

Answer

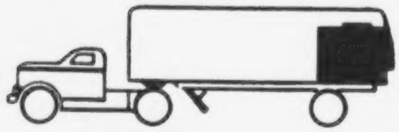


Wrong



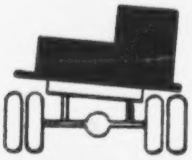
Right

The Right Vehicle for the Right Job.



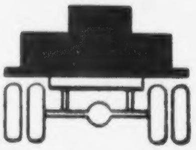
Wrong

This Overloads Trailer Rear Wheels, Brakes Won't Brake Properly, Rubber Scuffs Away. Distribute the Load Over the Full Trailer Floor.



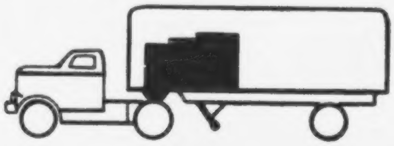
Wrong

This Overloads One Spring and Set of Tires. Brakes Lock on the Light Side, Cause Skids.



Right

Nothing Overloaded, Frame Won't Twist and Loosen Cross Member Rivets.



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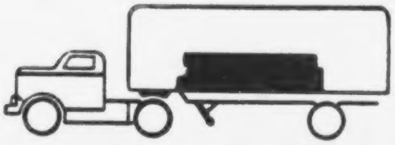
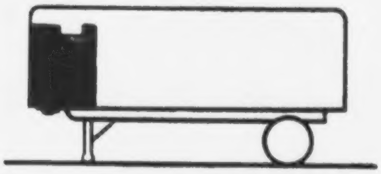
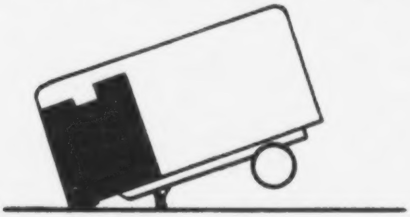


Right

This Overloads and Shortens Tire Life, Bends the Truck Rear-Axle Housing. Applying the Trailer Brakes May Lock the Wheels, Cause Flat Spots and Skidding.

Wrong





If You Are Not Careful, This Will Happen.

Dangers of Poorly Secured or Covered Cargo

- Cargo Damaged by
  - Poor Driving Habits
  - Over the Road Vibrations
- Cargo Falls on Roadway
- Cargo Shifts
  - Drivers Injured or Killed
- Cargo Ruined Because It Is Not Protected From Elements
- Poorly Secured Cargo Lost in Accident

Solutions

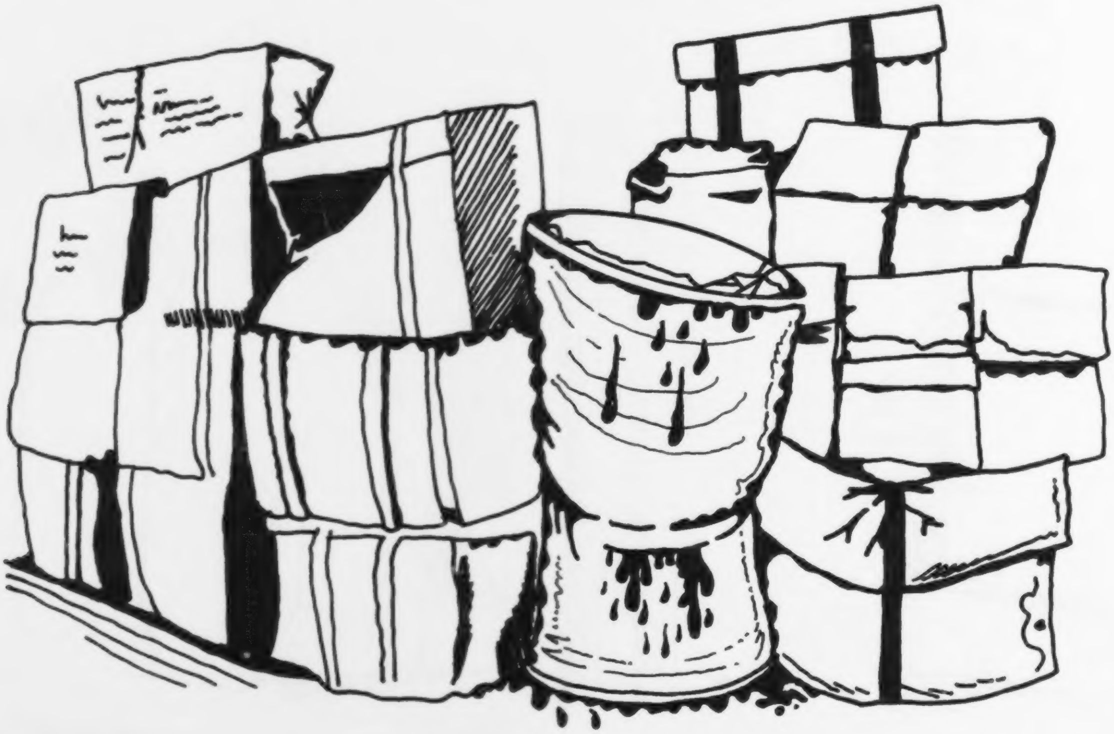
- Make Sure Cargo Is Packed Securely
  - It Is Tight, Balanced, Blocked and Braced
- Drive Smoothly
- Periodically Inspect Load, Load Covers and Tie-Downs
  - When Required by Company Policy or Law
  - After Abrupt Stops or Maneuvers

Visual 9

Avoid Cargo Damage

- Inspect Cargo Space Before Loading
  - Watch Out for Bolts, Nails, Metal Edges, Holes or Leaks

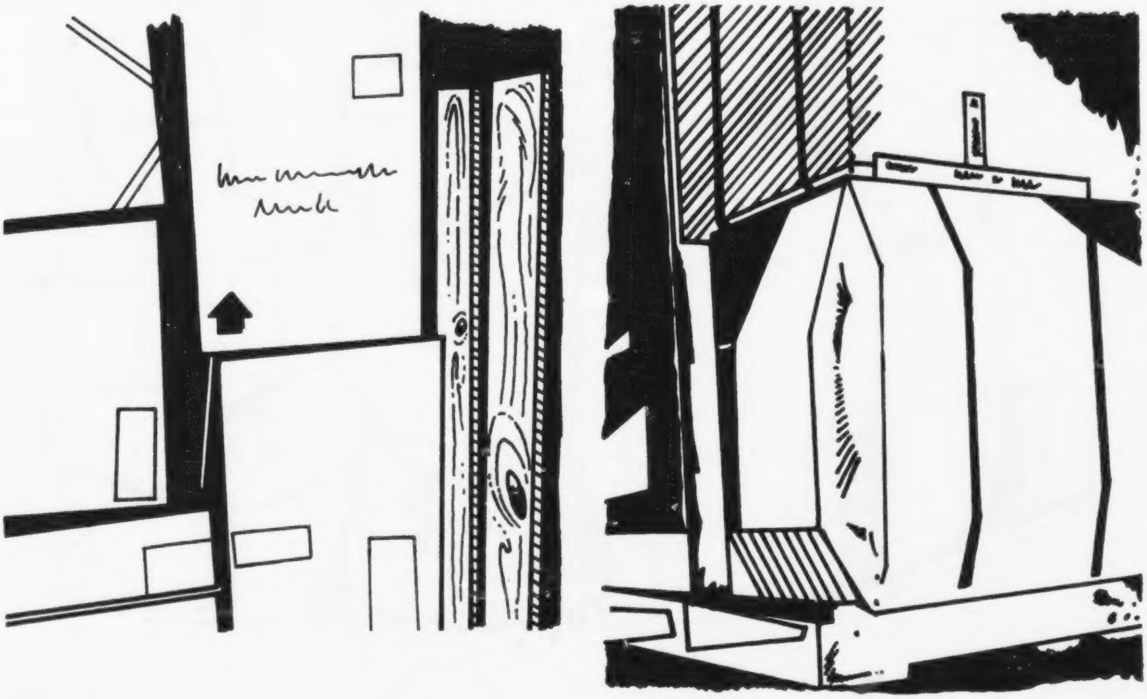
- Inspect Packaging Before Accepting for Shipment
  - Watch Out for:
    - Damaged Cargo
    - Cargo That Will Damage Other Cargo
    - Improperly Packed Cargo
    - Wet or Leaking Cargo



Visual 10

Cargo Stacking

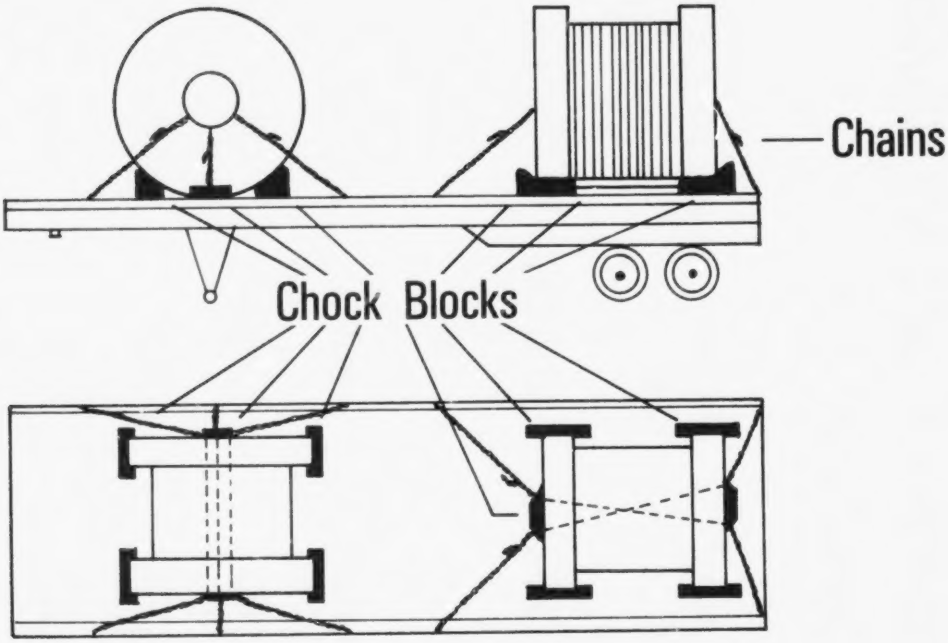
- Make Sure Cargo Is Stacked Properly
- Pay Attention to:
  - "Fragile"
  - "This End Up"
- Don't Load Heavy Freight on Top
- Distribute Load to Prevent Toppling
- Don't Put Weak Containers on Bottom
- Don't Stack too High
- Don't Mix Incompatible Loads
- Stagger Partial Loads
- Don't Stack too Many Heavy Items in One Spot



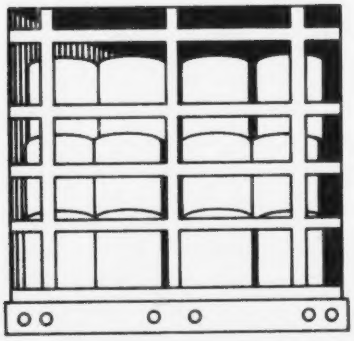
Visual 11

Examples of Blocking and Bracing Cargo

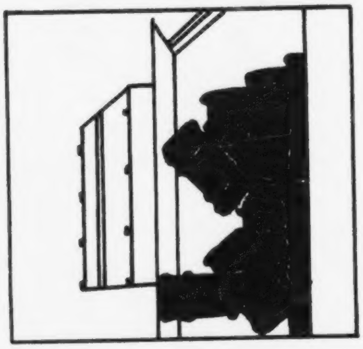
Coil Steel or Cable


Chains
Chock Blocks

Material Blocked and Braced in a Van Trailer



"Right"



"Wrong"

Visual 12

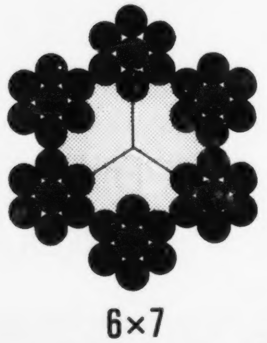
Approximate Safe Working Loads for Various Fibre and Synthetic Ropes

Size in Inches Diameter	Manila First Grade	Filament Nylon	Filament Dacron	Polyethylene	Polypropylene
1/4	60 Lbs	360 Lbs	240 Lbs	210 Lbs	250 Lbs
3/8	135	800	520	420	540
1/2	265	1,460	900	720	900
5/8	440	2,180	1,380	1,080	1,320
3/4	540	3,120	1,900	1,400	1,600
7/8	770	4,280	2,520	1,900	2,150

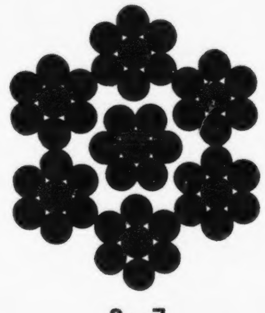
Note: Protect Ropes From Moisture, Dragging in Sand or Grit and From Exposure to Sunlight and Chemicals. When Not in Use Should Be Coiled and Put in Dark Storage With Good Air Circulation. If a Wet Rope Becomes Frozen, Do Not Disturb It Until Completely Thawed Out Otherwise Frozen Fibers Will Break When Subjected to Bending.

Visual 13

Approximate Safeworking Loads for Some Types of Wire Rope

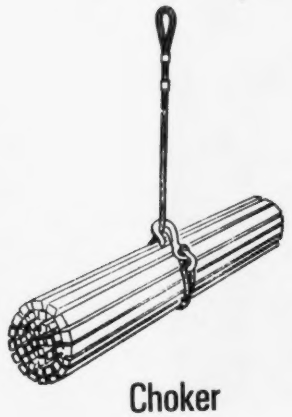


6×7
Wire Rope With 3 Strand Fibre Core

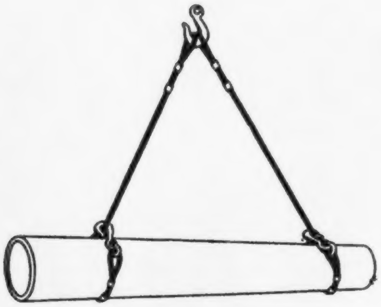


6×7
Wire Rope With 7 Strand Wire Rope Core

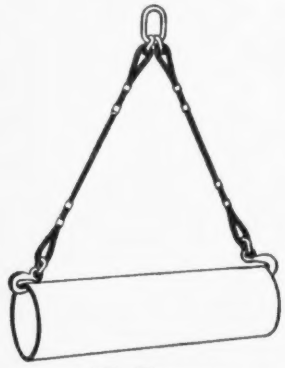
Diameter in Inches	Improved Plow Steel	Plow Steel	Mild Plow Steel
1/4	5,280 Lbs	4,600 Lbs	4,000 Lbs
3/8	11,720	10,200	8,860
1/2	20,600	17,920	15,580
3/4	45,400	39,600	34,400



Choker
Sling



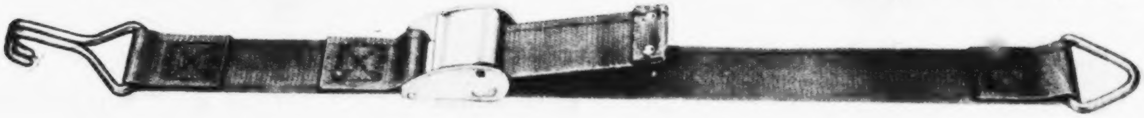
Double
Choker
Sling



60 Degree
Bridle
Sling

Visual 14

Nylon Web Strapping
(Used for Lighter Loads)


End Fitting A
(Fixed End)
End Fitting B
(Adjustable End)

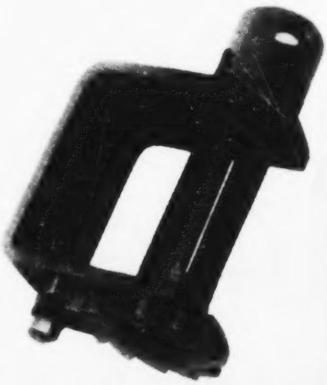
Used to Secure Piano

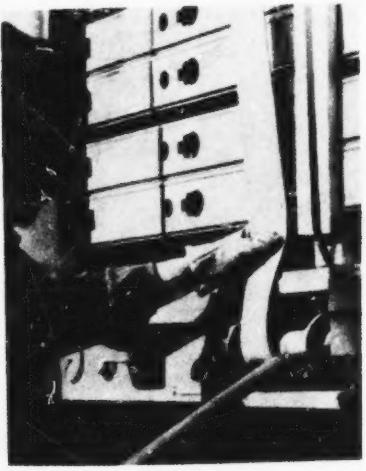
Visual 15

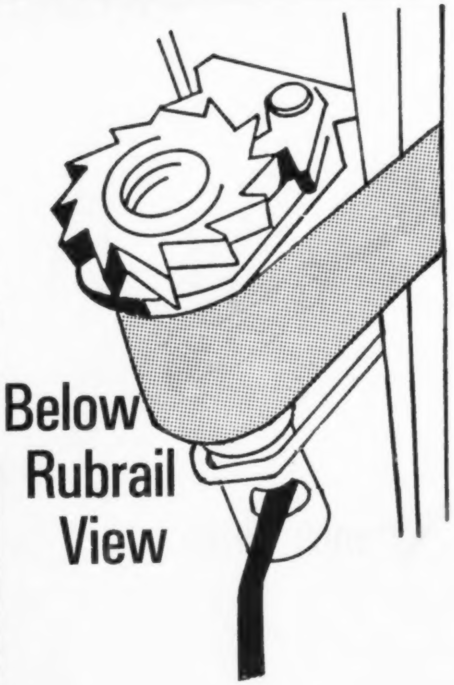
Winch Type Strap on Side of Vehicle

Winch Sytems Are Generally Permanent Fixtures on a Truck Frame. Nylon or Polyester Webbing Wrapped Around the Winch Is Pulled Out and Tossed Over the Cargo.

Once It's Attached to the Opposite Side of the Truck Frame, the Driver Tightens the Winch Until the Cargo Is Secure.

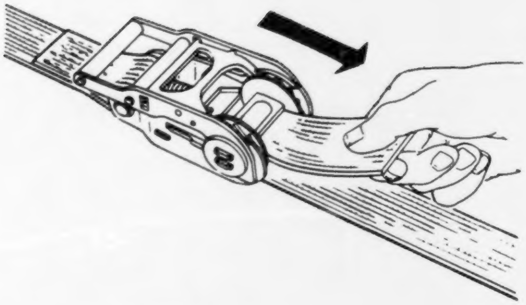




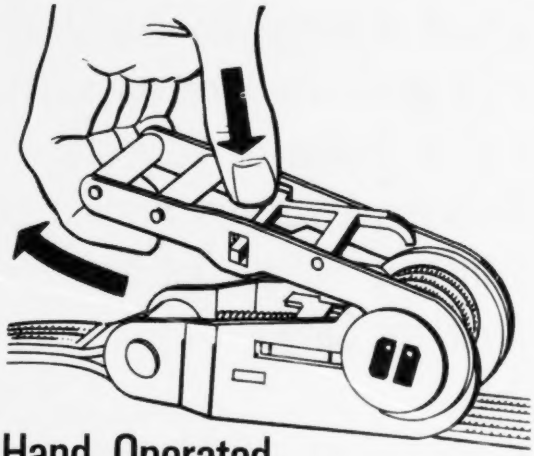


Visual 16

Hand Operated Ratchet

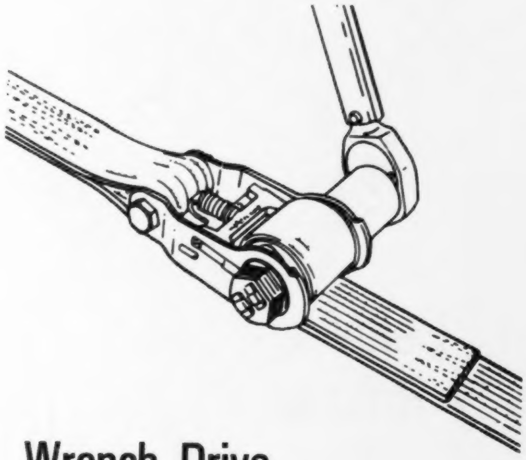


Pull Webbing Through the Shaft to Elminate Slack

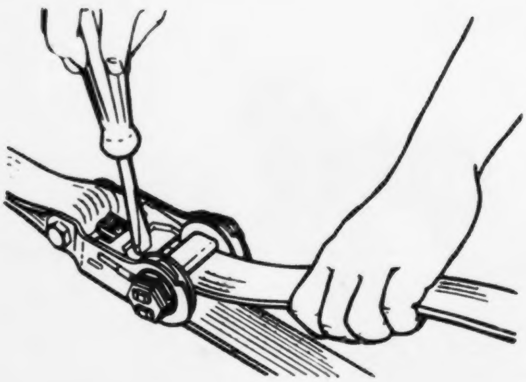


Hand Operated

Wrench Operated Ratchet

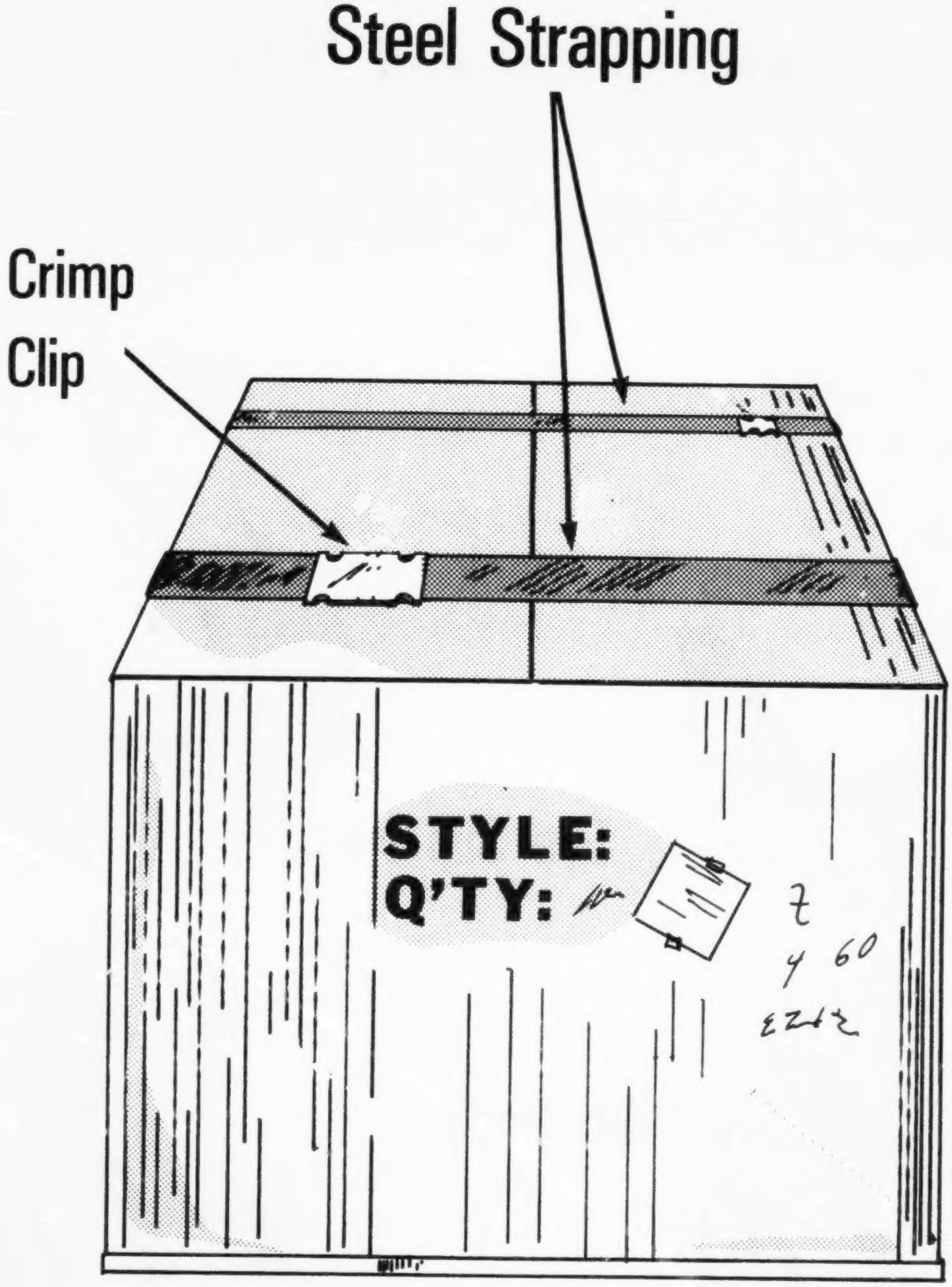


Wrench Drive



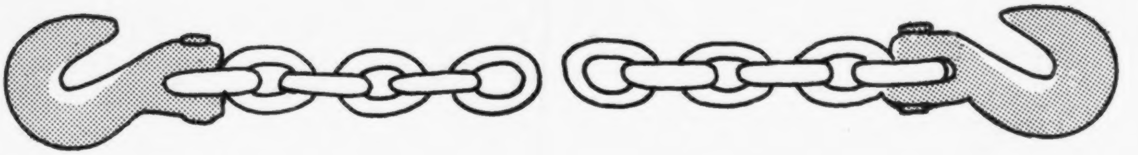
To Release: Push Tip of Screw Driver Against Locking Lever

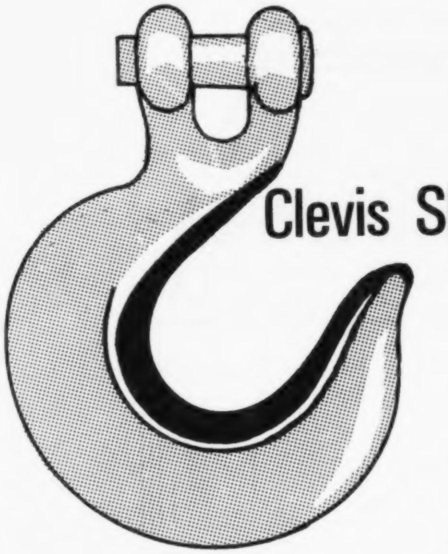
Visual 17


Steel Strapping
Crimp Clip
STYLE:
Q'TY:
7
4 60
EZ+Z

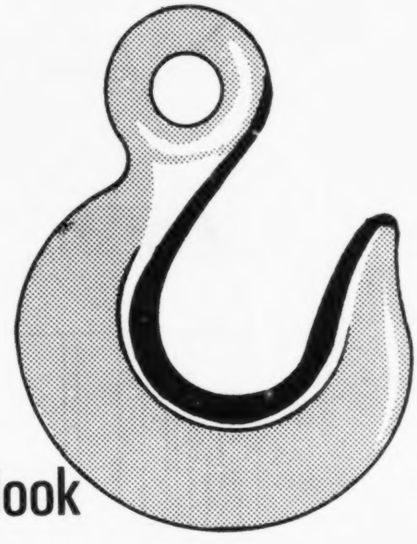
Visual 18

Tie Down Chain and Hooks

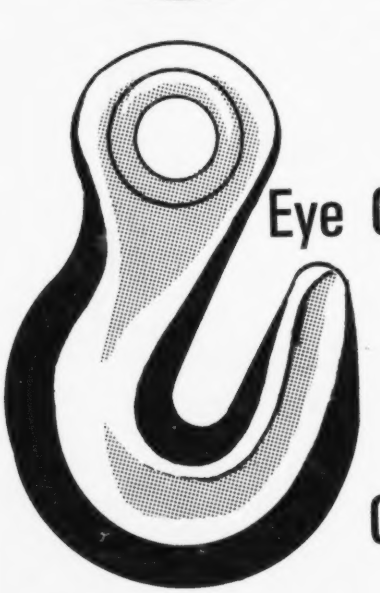




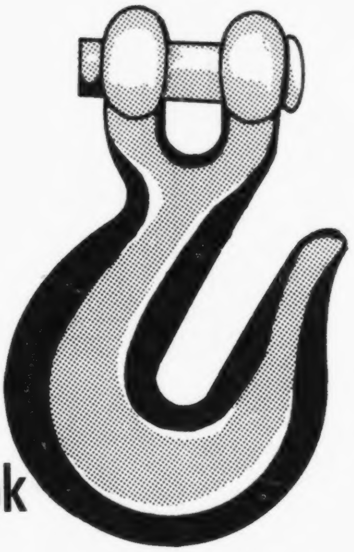
Clevis Slip Hook



Eye Slip Hook



Eye Grab Hook



Clevis Grab Hook

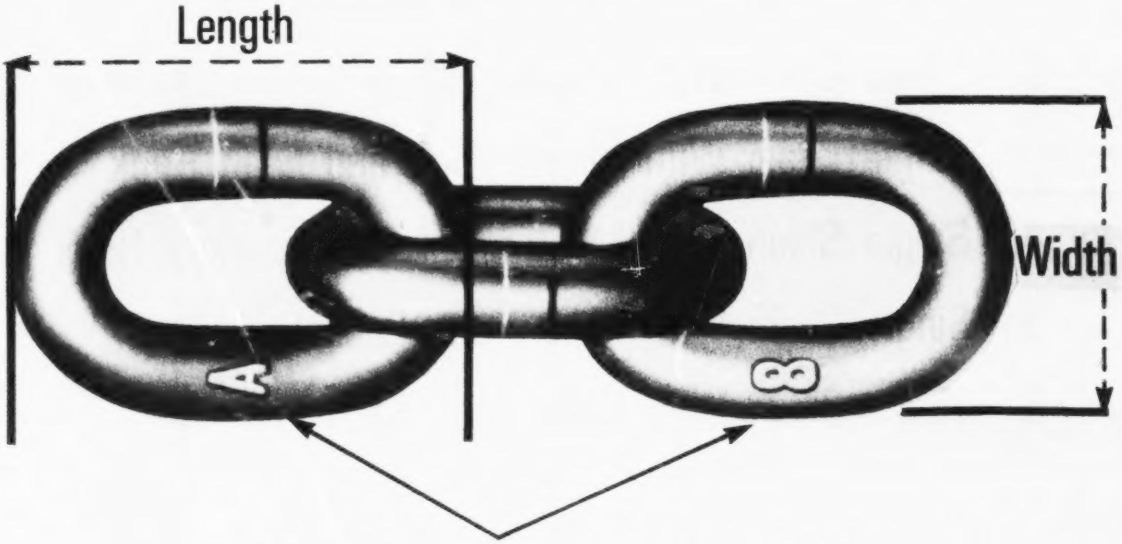
Visual 19

Chain Safe Working Load Limit

- Determined by Type of Steel
- Grade of Steel
- Size of Chain

  Example:

  So Called 1/4 Inch Chain Has an Outside Link Length of 1 5/16 Inches and an Outside Width of 7/8 Inch



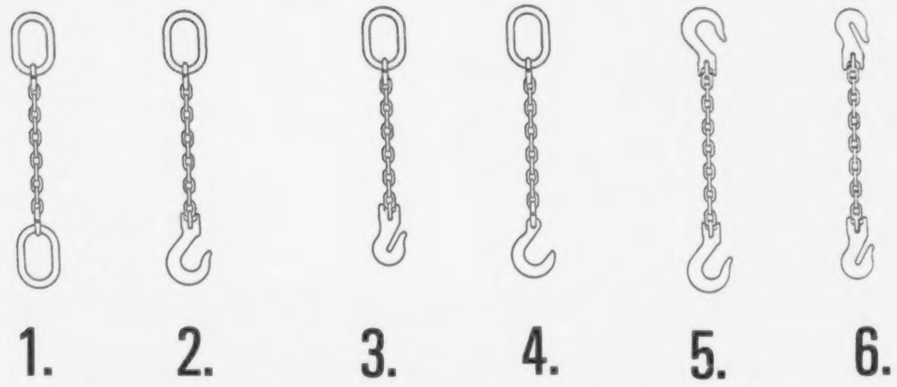
Manufacturers Rating Codes

In This Case:

"A"=Alloy Steel

"8"=Grade Number 8

Common Chain Slings



1.– Single Chain With Master Link Each End

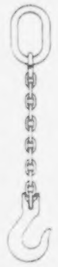
2.– Single Chain With Master Link and Eye Slip Hook

3.– Single Chain With Master Link and Grab Hook

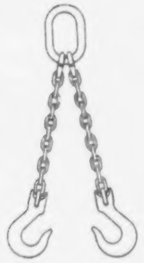
4.– Single Chain With Master Link and Foundry Hook

5.– Single Chain With Sling Hook Each End

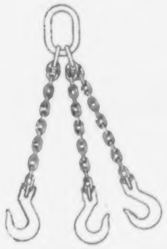
6.– Single Chain With Grab Hook Each End



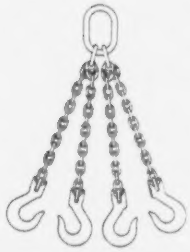
Single
Leg
Sling



Double
Leg
Sling



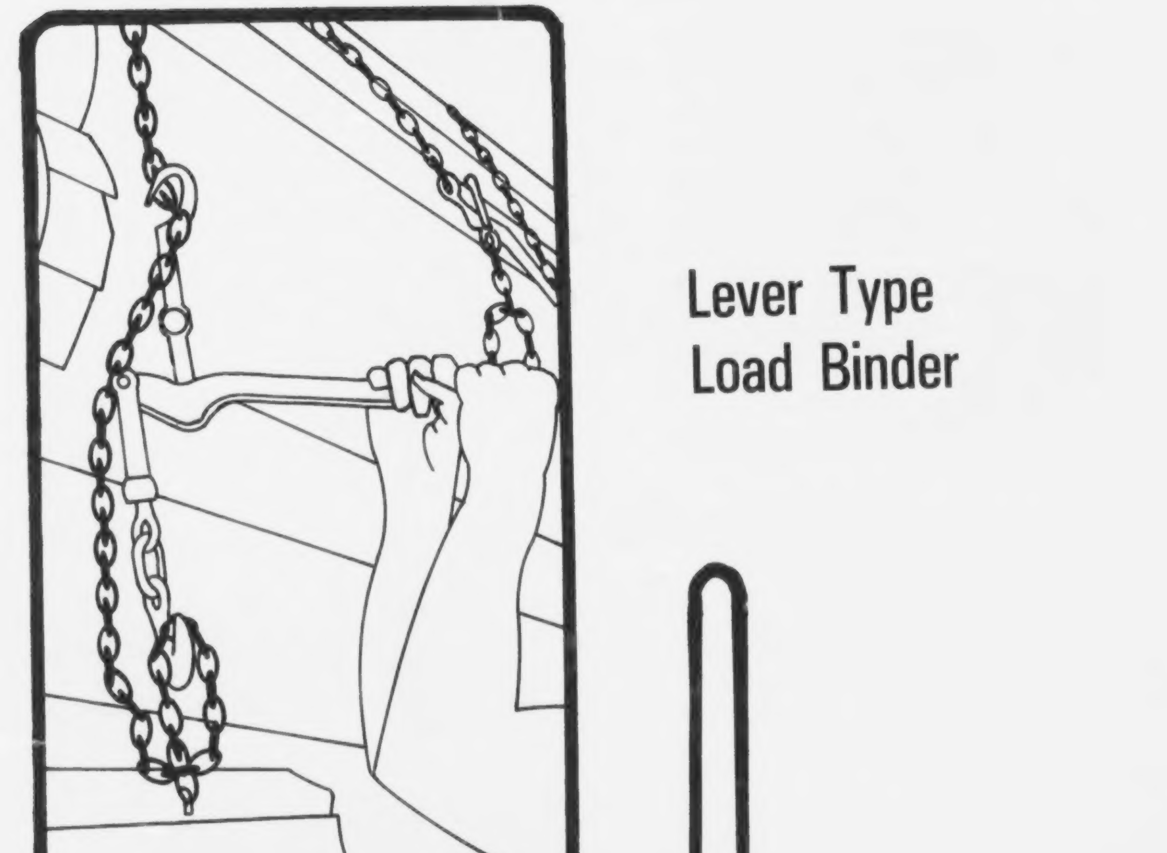
Triple
Leg
Sling



Quadruple
Leg
Sling

Visual 21

Chain Binders

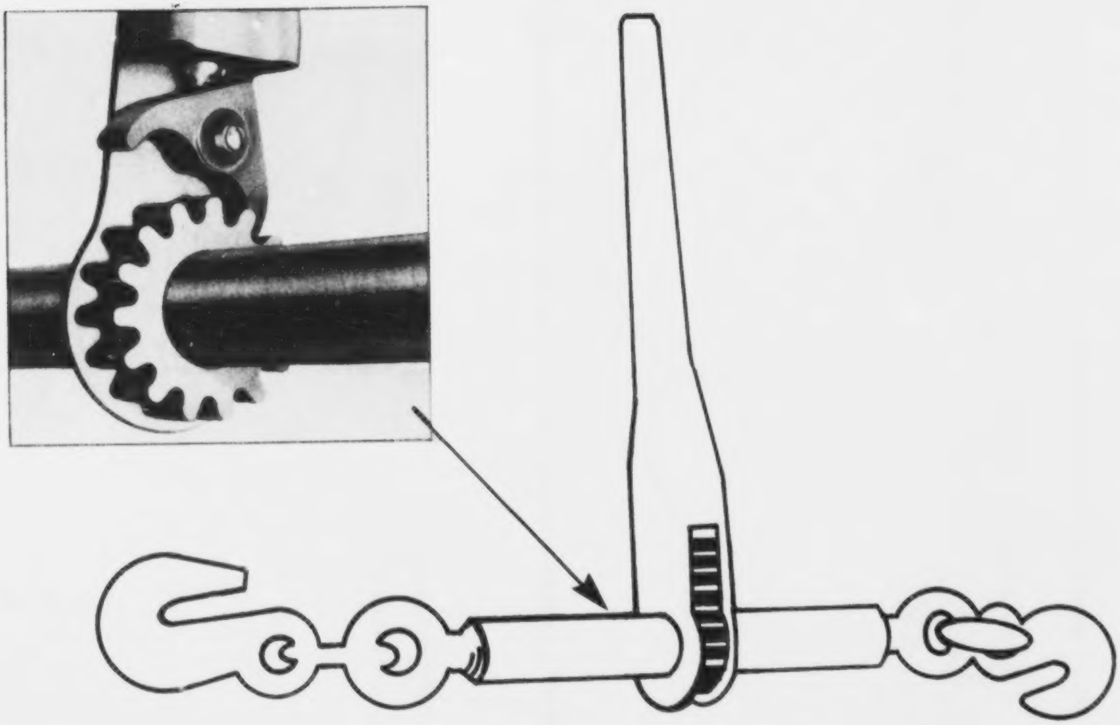


Lever Type Load Binder

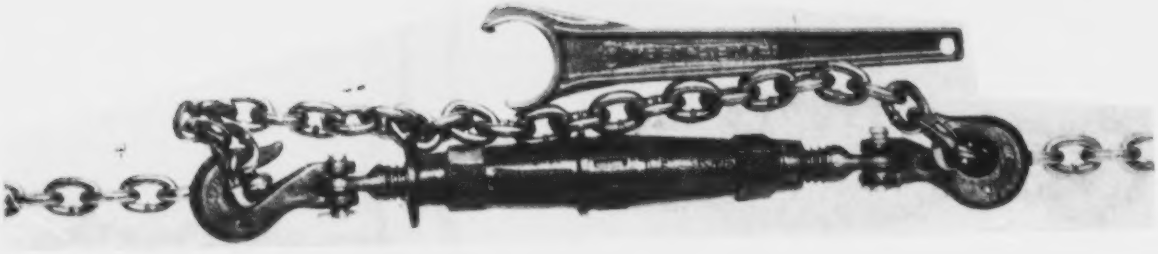
Snubbing Type Binder

Visual 22

Ratchet Type Chain Binders



Fixed Handle Type



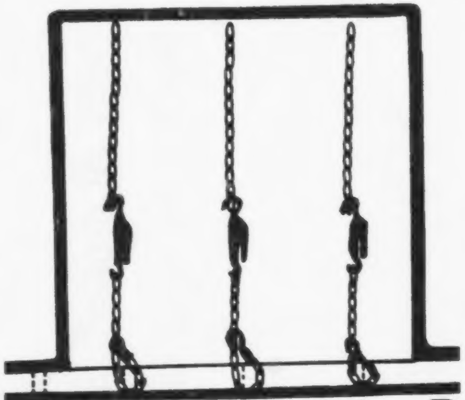
Removable Handle Type

Example of Regulations Related to Chain Binder Strength

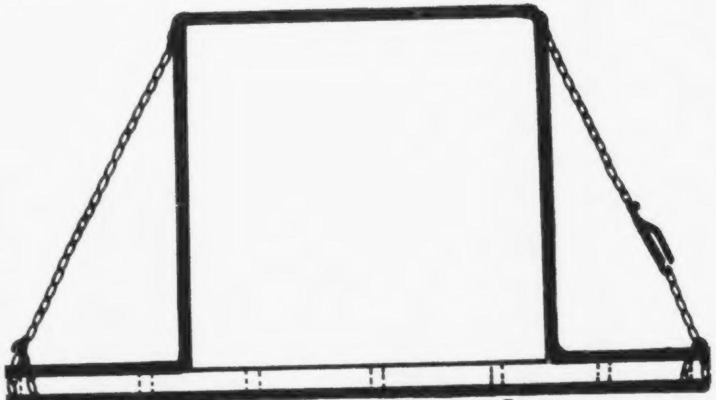
- Strength
  - Federal Regulations Require Rating 1-1/2 Times Load

    Example: 5000 Lb. Load Requires Binder Rated
    at 7500 Lbs.
  - Some States Have Stricter Laws
- Examples:
  - California Rates
    - Chains at 80% Manufacturer's Strength
    - Straps at 50% Manfacturer's Strength
- Entire System Must Be Adequate for the Load
  - System Only as Strong as Weakest Link
  - Each Component Must Have Sufficient Rating
- Example:
  - Chain Rated at 20 Times
  - Coupled With Clinching Devices With Same Rating
  - Attached to Hook on Flat Bed Designed for Hand Tied Rope
  - Result: Hook Will Be Pulled From Mooring When Under Stress

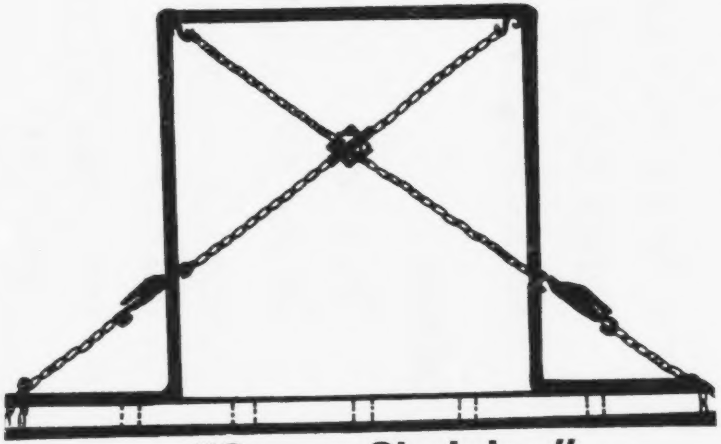
Four Basic Ways to Chain Down



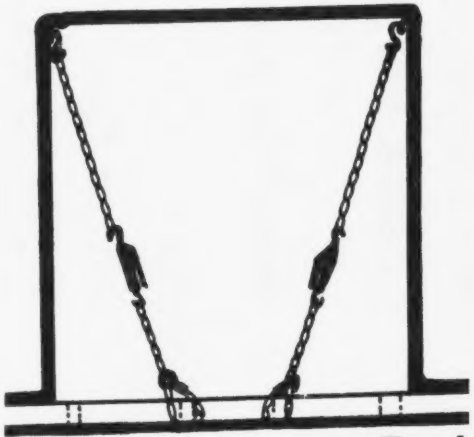
"Chains Pulling Straight Down"



"Chains Pulling Away From Article"



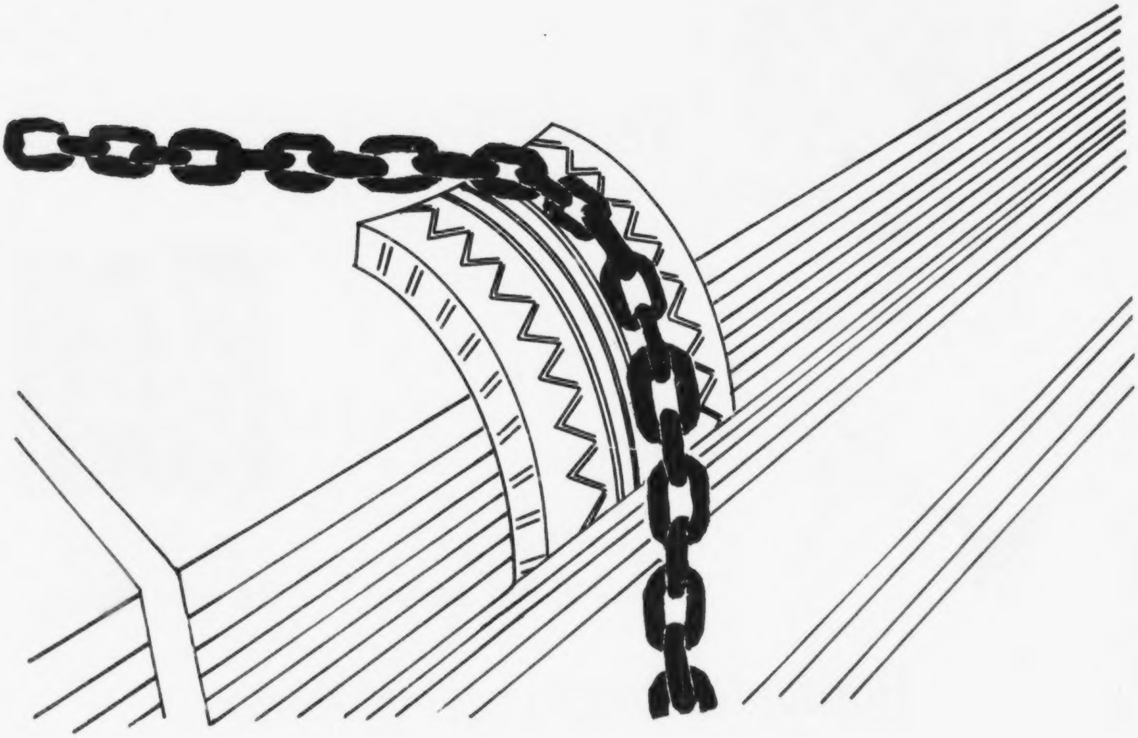
"Cross Chaining"



"Chains Pulling to Each Other"

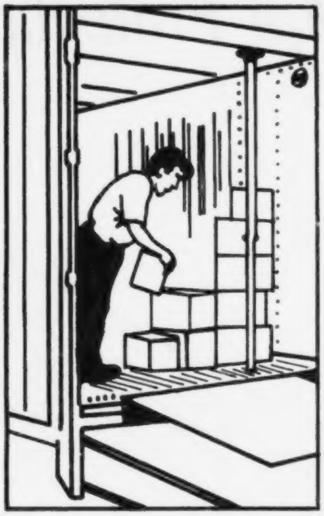
Visual 25

Some Loads Require Edge Protection

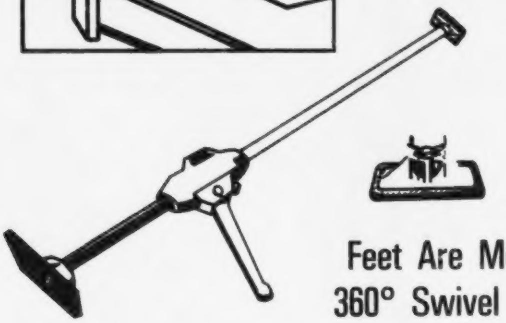


- Load of Sheet Steel Protected From Chain by Section Cut From Rubber Tire

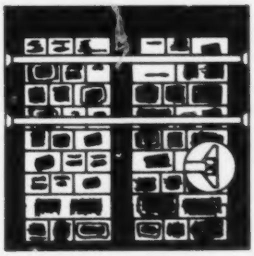
Friction Load Locking Bars for Vans



Vertical Load Locking Bars

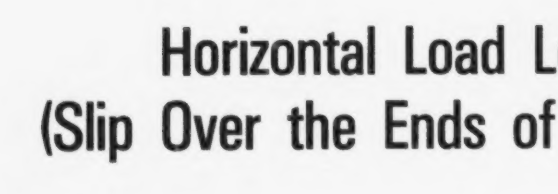


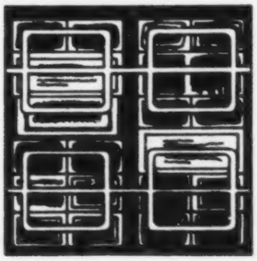
Feet Are Mounted on
360° Swivel Ball Joints



Blocked Load
Prevents Shifting

Horizontal Load Locking Bars

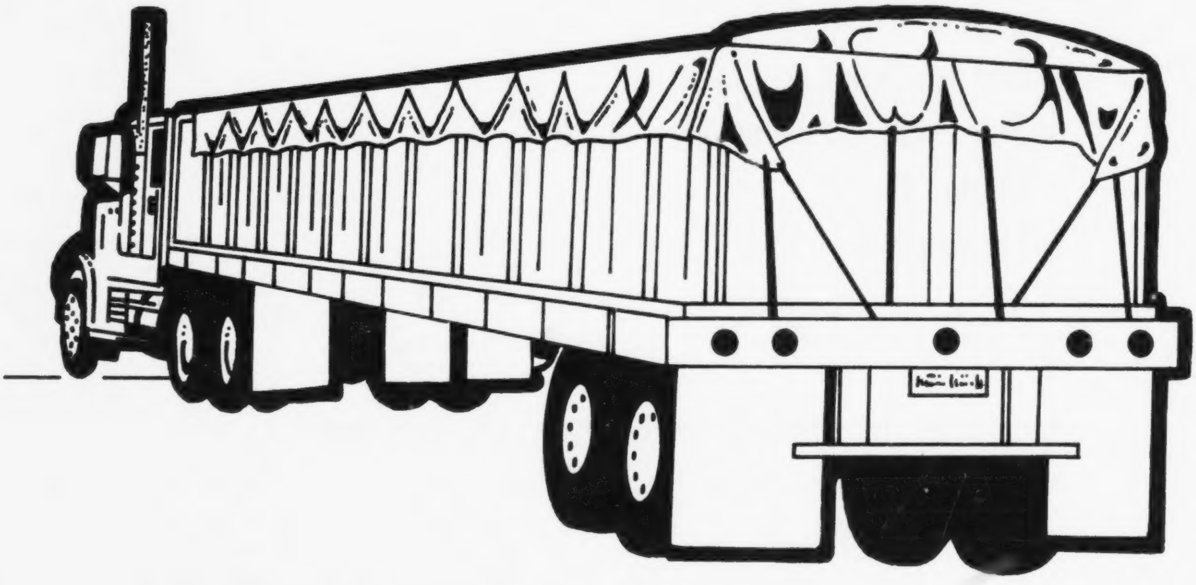




Horizontal Load Locking Hoops
(Slip Over the Ends of Lock Bars Above)

Visual 27

Covering Cargo



Spill Protection

- To Protect Public
- Meet State Law Requirements

Cargo Protection

- To Prevent Corrosion or Other Weather Damage
- Company Can Be Liable for Ruined Cargo
- Use Tarp When Needed
- Make Sure Tarp Doesn't Leak
- Make Sure Tied Properly So It Won't Tear or Leak

Use and Care of Tarps

Secure Tarp Properly

- Slip on Front to Back
- Pull Back So Nose Fits Snugly
- Center It
- Tie Securely

Care for the Tarp

- Inspect for Damage and Repair Immediately
- Pad to Protect From Sharp Edges
- Keep Tarp Clean
- Prevent From Being Rubbed by Moving Parts of Vehicle
- Get Professional Repairs

Monitoring

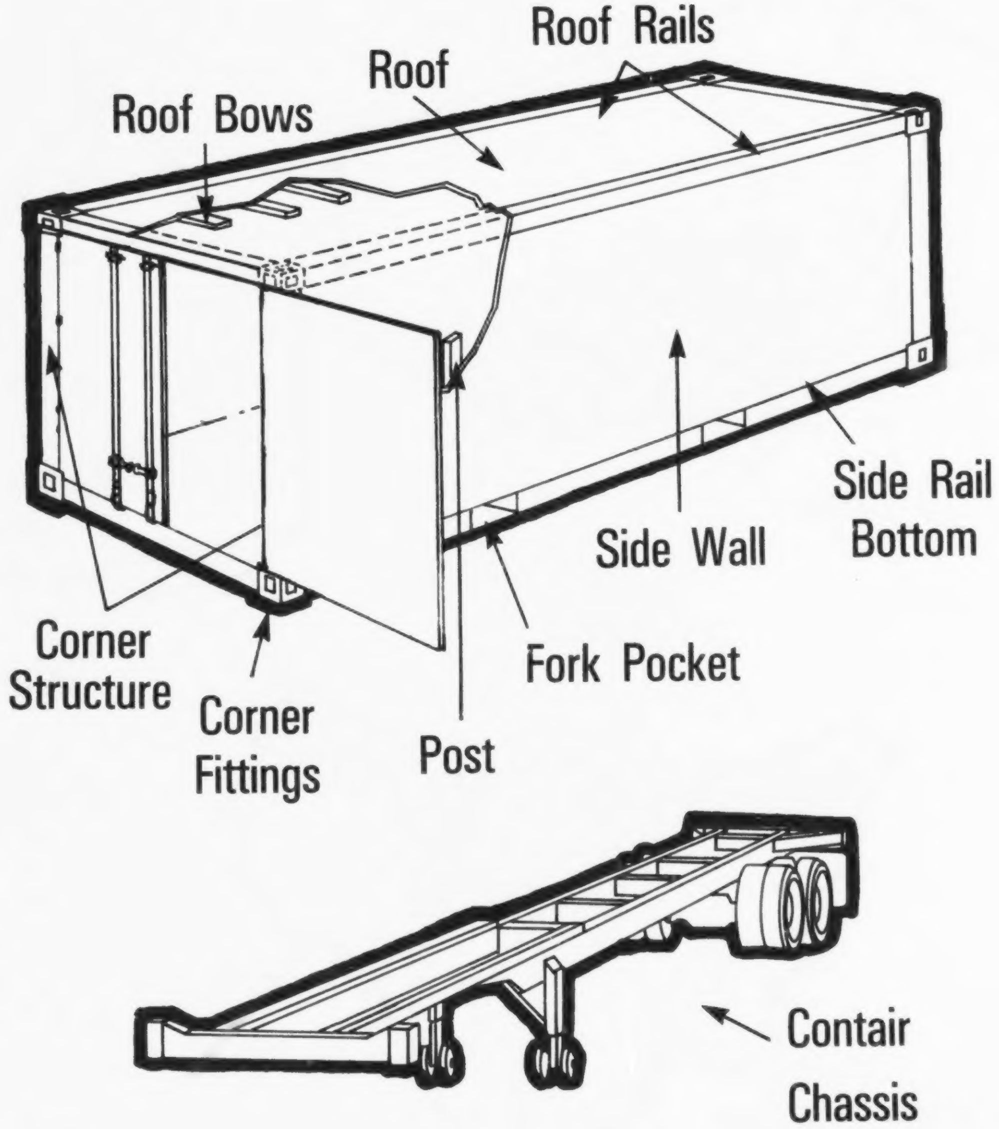
- Watch for While Enroute
  - Flapping Tarp
  - Ballooning Tarp

Storage

- Fold, Roll and Store Properly
- Don't Throw It on Tractor Frame or Fuel Tanks
- Use Tarp Holder, if None Tie Securely to Trailer Deck

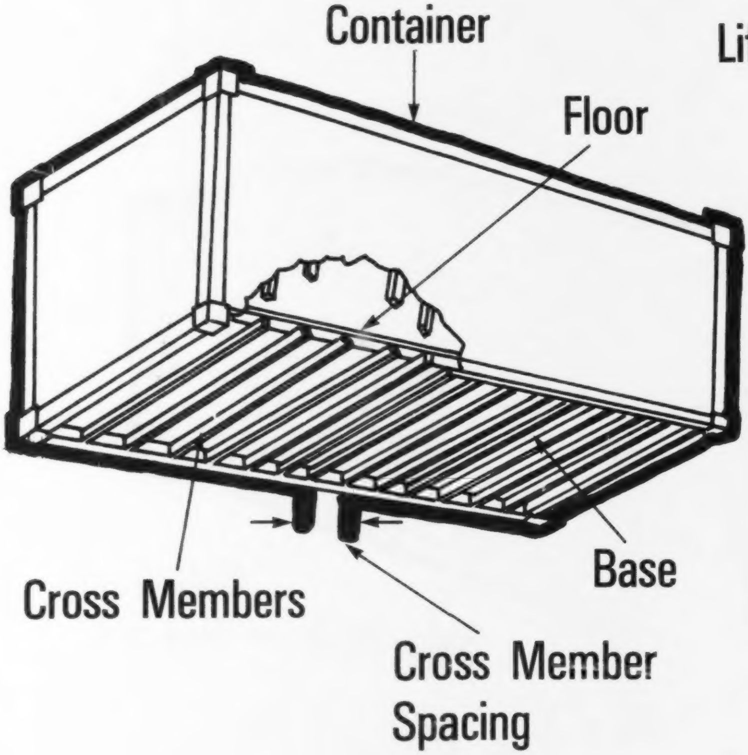
Visual 29

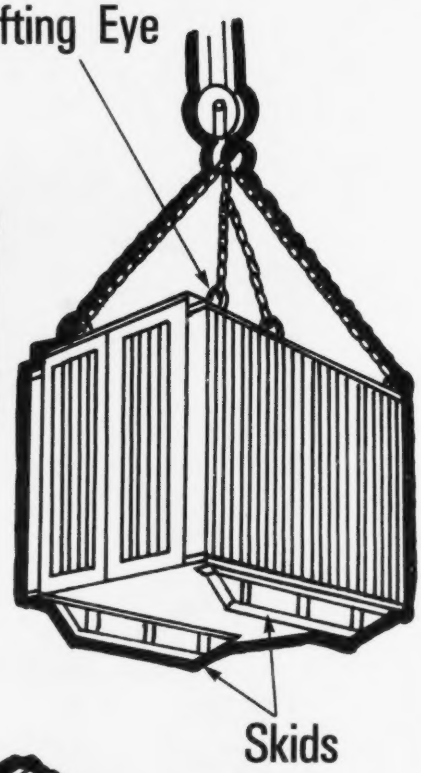
Integral Type Container and Chassis

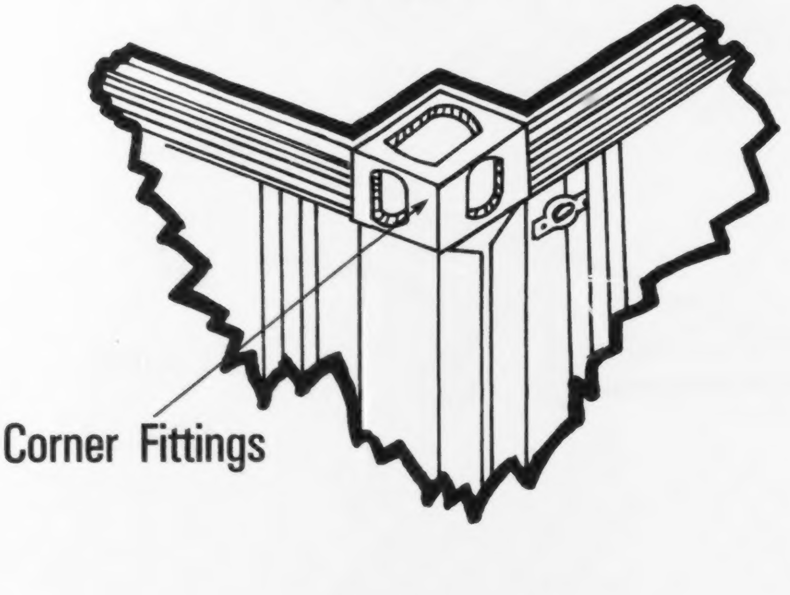

Roof Rails
Roof
Roof Bows
Side Rail Bottom
Side Wall
Fork Pocket
Corner Structure
Corner Fittings
Post
Contair Chassis

Visual 30

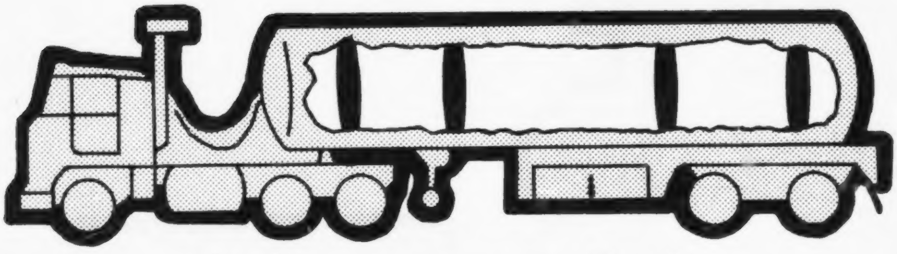
Non-Integral Type Containers


Container
Floor
Cross Members
Base
Cross Member Spacing

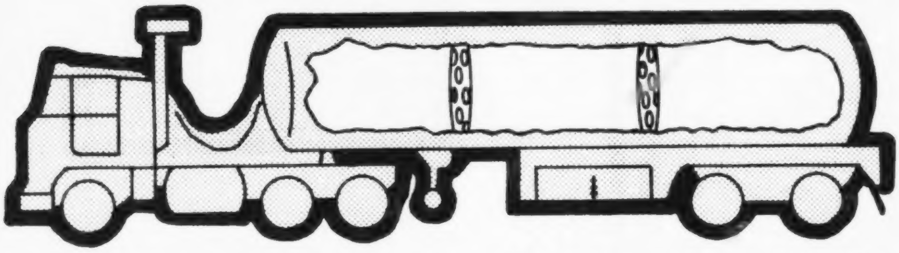

Lifting Eye
Skids


Corner Fittings

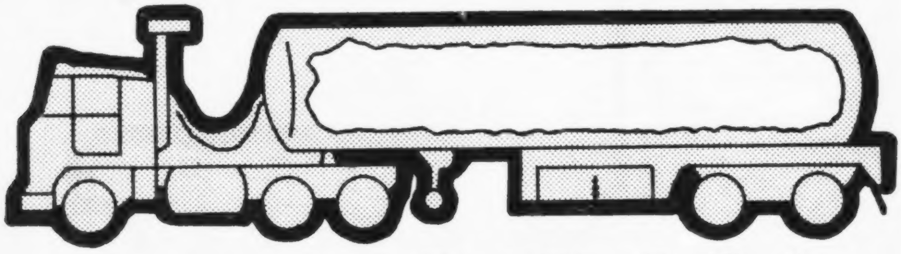
Tank Trailers



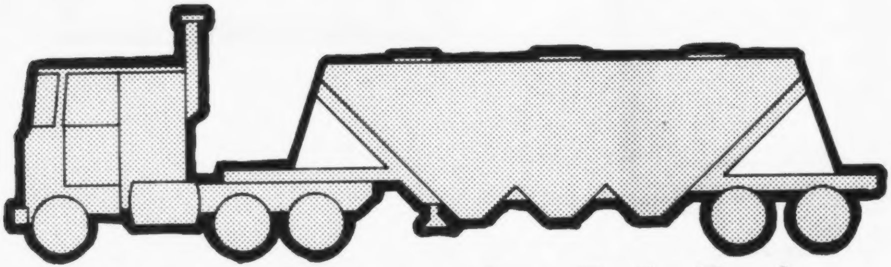
5 Compartment Tank



Tank With 2 Baffles (To Reduce Liquid Surge)

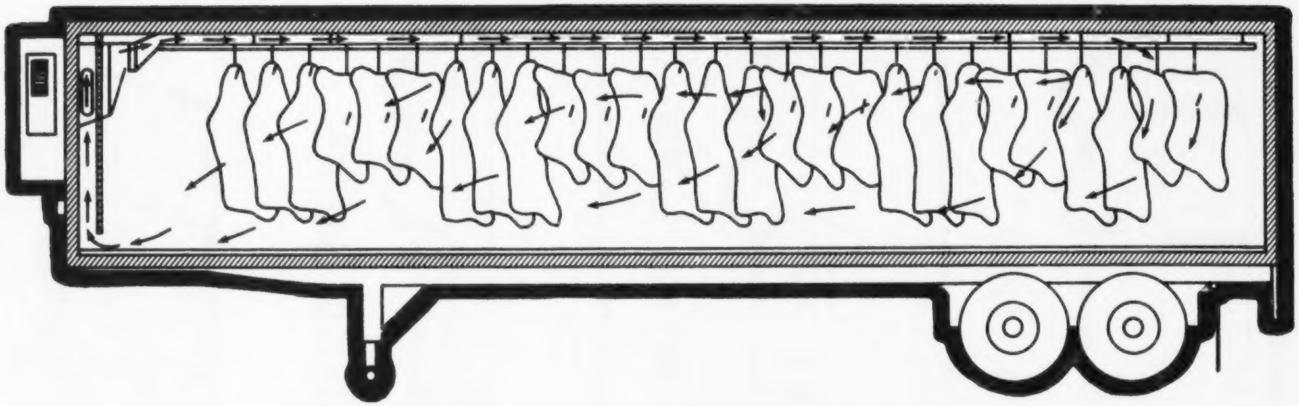


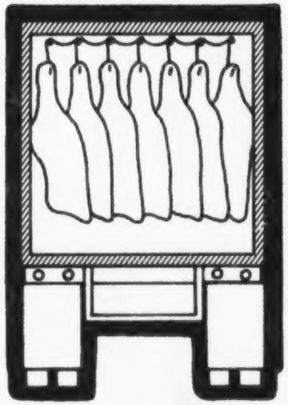
Straight Bore Tank (No Baffles)



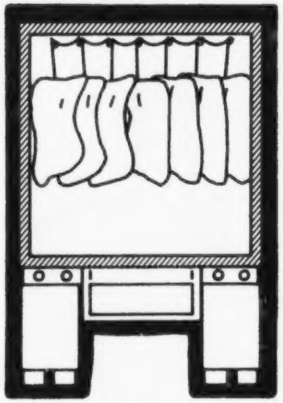
3 Compartment Dry Bulk Tank

Swinging Meat Loads



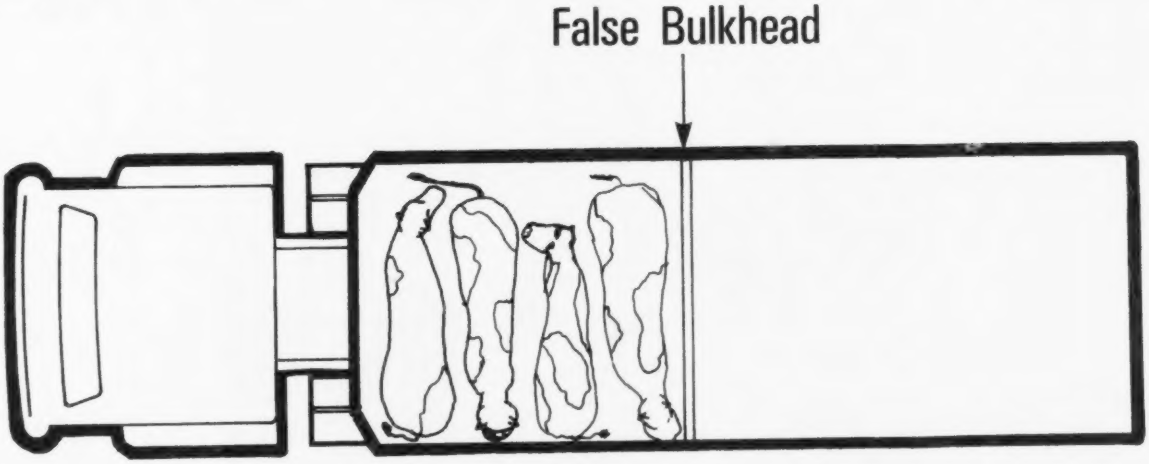


End View
Hindquarters



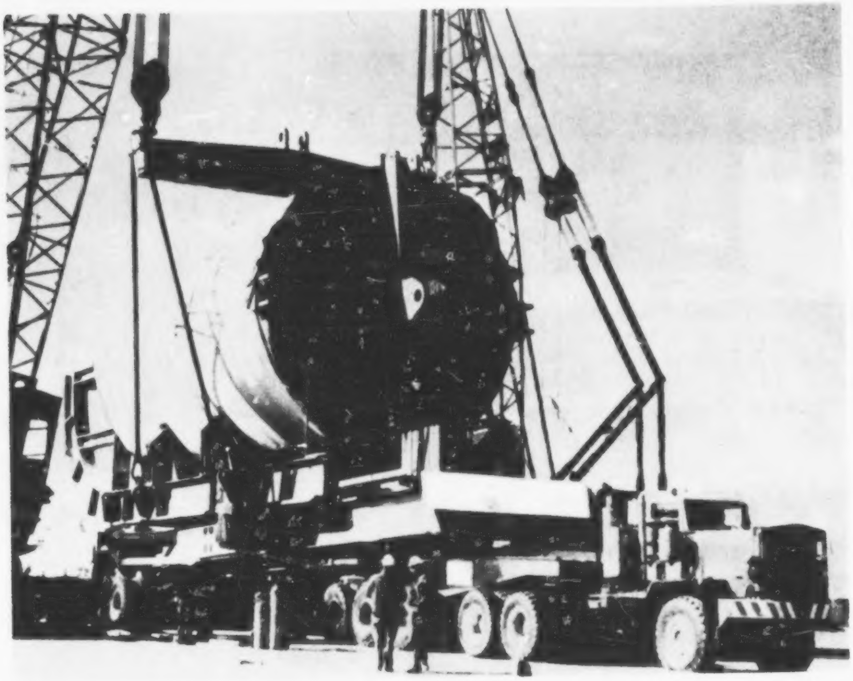
End View
Forequarters

Live Cattle, Sheep and Hog Loads


False Bulkhead

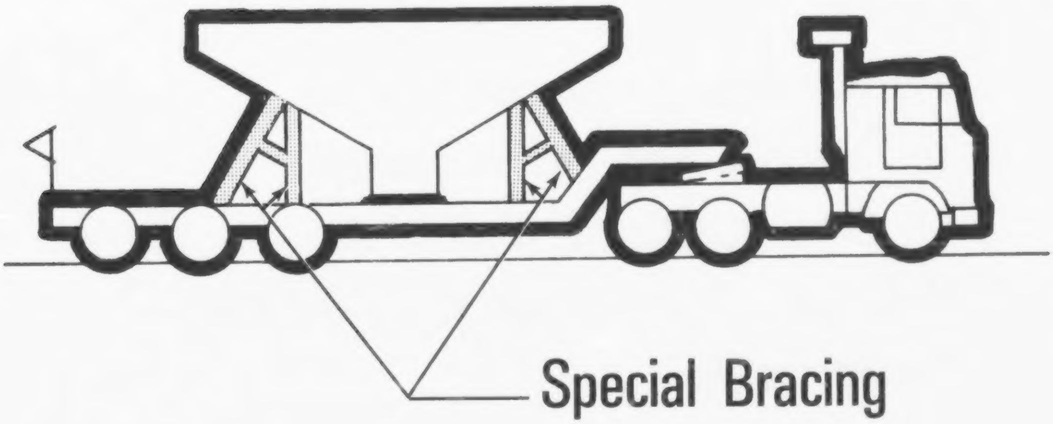
Visual 34

Overdimension/Overweight Loads



Visual 35

Top Heavy/Odd Shaped Loads


Special Bracing

Steps in Handling Hazardous Materials and Wastes

- Should Be Handled Only by Trained Personnel
- Pay Special Attention to Loading Instructions on Label
- Don't Mix Incompatible Loads
  - Explosives With Other Material
  - Poisons With Feed or Foods
- Use Extreme Care
  - Avoid Spillage or Damage
  - Don't Smoke
  - Secure Against Movement–Block or Brace
- Don't Transfer Hazardous Material to Other Vehicle EnRoute Unless It Is an Emergency
- Inspection
  - Use Guidelines for Specific Material
  - Be Especially Alert for Fire Hazards
  - Pay Extra Attention to Tires
  - Make Sure Shipping Papers Are Complete
  - Placard the Vehicle

LESSON 2 TECHNIQUES FOR LOADING, SECURING AND UNLOADING CARGO (CLASSROOM)

Overview

Time Allotted: 1 hour 30 minutes

Prerequisites: Unit 5.1, Lesson 1

Purpose:

The purpose of this lesson is to describe the function and operation of common cargo handling equipment. Samples of ropes, straps and chains will be exhibited. The instructor will also demonstrate some basic knots to be used that can quickly be released in case of emergency.

Materials

Instructional Aids

Visuals 1 - 13

Student Material

No additional material required

Instructor Material

Copies of manuals or technical data sheet from manufacturer's of rope, straps, cable, chain and chain binders covering proper use, maintenance and safety precautions to be exercised.

Copy of "Handbood of Rigging - Third Edition" by W.E. Rossnagel, covering safe working load limits of various cargo tie-downs, i.e., ropes, cables, chains, slings and various types of knots. There are other suppliers of such data - consult List of Training Aids in this manual.

Equipment

Sample lengths of natural fiber ropes, manmade fiber rope, wire rope, steel strapping (bonding), nylon webb strapping, steel cable, varous size/types of chain and chain binders.

Content

Activity or Topic	Approximate Time
1. FUNCTION AND OPERATION OF CARGO HANDLING EQUIPMENT	45 minutes
2. DEMONSTRATION OF CARGO SECURING EQUIPMENT	45 minutes
	1 hour 30 minutes

1. FUNCTION AND OPERATION OF CARGO HANDLING EQUIPMENT (45 minutes)

Visual 1 Type of Loading Docks

Overview of Loading Dock Operations

Process of Loading/Unloading

- Depends on type of
    - Cargo
    - Vehicle
    - Loading area
    - Cargo can be moved on/off vehicle in a variety of ways
        - Manually (hand carried)
        - Conveyor belts which run into end of trailer and then manually
        - Hand trucks
        - Pallet trucks and fork lift trucks
        - Lifted on or off with cranes

Loading/Unloading Areas

- Varies when not at home terminal
- Range from backing into enclosed area with or without docks to various types of open loading docks

Various Types of Cargo Handling Equipment

Cargo handling equipment ranges from simple pry bars to hand trucks and fork lift trucks up to loading cranes

Only most commonly used equipment that student may be exposed to is discussed here

Visual 2 Lever Dolly or Johnson Bar

Pry Bar or Lever Dolly

- Often called a "Johnson Bar"
- Type of pry bar with its own lever to raise or maneuver heavy pieces of cargo
- Huge, flat wooden bar with small set of wheels on one side of tip
- Small steel lip on other side
- Lip reaches under crate that the bar itself would not go under

Visual 3 Types of Hand Trucks

Hand Trucks

- Handtruck is probably the most widely used piece of cargo handling equipment
    - Can load:
        - Household appliances (i.e., refrigerator)
        - One large carton
        - Several medium cartons

Special two-wheel trucks available for barrels and drums

Safety tips:
- Use common sense
- Don't overload
- Strap on cargo if necessary
- Don't use ordinary handtruck for barrels or drums

Visual 4 Platforms or Carts

Platforms or Carts

Platform truck or "wagon":
- Used to move cargo around dock area
- Comes in several sizes, 32" by 40", 32" by 48"
- Especially good for bulky freight
- Safety tips, basic common sense
  - Don't overload or stack improperly
  - Secure load if necessary
  - Get help if cargo is too heavy

Rug Cart

- Four-wheel cart used for rugs or other long freight
- Description
  - Four-wheel car with flat attached with corner posts to permit loading of many small rugs, long freight
  - Two additional casters in center for ease of handling maneuver ability
- Caution:
  - Don't carry rugs, long freight on shoulders
  - Use proper equipment, e.g., rug cart

Dolly

- Small four-wheel platform
  - Flat piece of extremely hard wood, padded on edges, with swivel wheels on bottom
  - Effective for pushing heavy items around, such as crates of furniture
- Caution: two-man (or more) operation

Visual 5 Examples and Key Parts of Forklift Truck

Fork Lift Truck ("Hi-Lo")

What It Is

- Small motor vehicle powered by:
  - Gasoline or LPG fueled engine
  - Small diesel engine
  - Electric motor (large storage batteries)
- Special features:
  - Powerful hyudraulic system enabling trucks to be raised and lowered, moved fore and aft, in some, left to right
  - Rear axle steers, not front axle

What It Does

- Lifts and carries all types of cargo, normally cargo mounted on pallets
- Can load other cargo, e.g., crates, rugs, via "jerry poles"
- Can be fitted with clamps to grip and clamp large articles such as rolls of newsprint, storage tanks

Training is Required to Operate it Safely

- Potential for damaging cargo
  - Cargo rammed with forks or dropped
  - Cargo hits
    - Walls
    - Stacks
    - Overhead lights, wires
- Potential for injuries
  - Driving accidents
  - Driver or pedestrians hurt
- On-the-job or formal training needed before operating

Check the Equipment Before Operation to See That:

- Forks spaced properly
  - Properly spread to load and lift cargo
  - Not too close together
  - Not too far apart--cargo not supported
- Brakes, horns, other systems operate properly

Visual 6 Illustration and Steps of Safe Forklift Operation

Driving the Fork Truck Safely

- Always lift load clear of ground so that it can't catch or snag
- Use good visual techniques
  - Look in direction of travel
  - Check overhead and side clearances
  - Never travel blind, if load blocks view, travel in reverse
- Brake to complete stop before reversing
- Operate at reasonable speed

- Warn pedestrians, others with horn
- Drive smoothly, i.e., avoid sharp truns or sudden jerks
- Watch out for sideway swing during sharp turns because of the rear steering wheel
- Don't drive over small objects
  - Brings vehicle to stop, causes steering wheel to spin
  - Could result in serious injury
- Use gears properly
  - Depress clutch pedal all the way down
  - Don't grind gears
- Carry load properly
  - Keep load low (4" to 6" off ground) when traveling
  - Cradle load by tilting mast back slightly

Loading/Unloading Cargo

- Watch overhead clearances
    - Sprinklers, Etc.
- Slide cargo into position, level forks
    - Pull away when it is secure
- Stay off trailer until positive it is chocked

Parking

- Place forks flush on pavement
- Put in low gear
- Set brakes
- Shut off power
- Don't park on
    - Incline/decline
    - dock plate or dock board

Visual 7 Forklift Hazards

Some Common Fork Lift Problems and Hazards

- Blades (forks) not long enough for load
    - Load will fall off
    - Use "shoes" or extenders
    - Use chains to secure certain long loads
- Engine can overheat, cause a fire, don't let it sit idling
- Blades can damage cargo
    - Avoid "ramming into pallets" by proper speed control
    - Avoid piercing cargo via careful handling
- Passengers can be severely injured, do not allow on forks or cargo

Recap

- Fork truck like any other motor vehicle
- Learn how it operates mechanically (to spot trouble)
- Learn how to drive it safely
- Know the common hazards
    - Driving in loading area
    - Loading/unloading

Visual 8 Pallet Jacks (Trucks)

Pallet Jacks

Three types:

1. Manually powered type
    - Operate foot pedal to apply hydraulic pressure
    - Pressure raises forks 2-3" off ground with pallet
    - Move pallet jack by hand

2. Motor (electric - battery) walking
   - Control switch on handle raises forks and propels power wheels, e.g., don't push by hand
3. Motor (electric - battery) riding type
   - Same as battery powered except can sit in and drive it instead of pushing it

Visual 9 Skid With Machinery

Moving Heavier Cargo

Skids

Platforms made of heavy planks on runners on which heavy machinery is mounted
Usually bolted down securely

Rollers

Pieces of pipe, usually 2" diameter placed under skids
Makes possible to push heavy machinery to truck
Use prybar or Johnson bar to lift skid, put rollers under it

Winch

Device which provides extra power to pull heavy items
Used for:
- Pulling industrial machinery up loading ramps
- Moving large freight in position for forklift/crane

Stabilizing Jacks

Supporting Nose of Trailer
- If trailer not supported by tractor, may need stabilizing jack to support nose when forklift or other heavy equipment driven on trailer
- Weight of forklift and cargo can cause landing gear on trailer to collapse and trailer to flip up
- Driver can be seriously injured

Supporting Rear of Trailer
- Heavy machinery moved onto/off trucks can cause damage
  - May overload rear frame or axles
  - Damage occurs to frame or axles
  - Front end lifted off ground

Solution:
- Place jacks or blocks under rear of vehicle when loading/unloading
- Stabilizes vehicle and protects it from damage when moving heavy pieces

Visual 10 Dock Plates, Dockboards and Hydraulic Lift Tailgates

Types of space between loading area and rear of trailer bridged by several methods

- Hydraulic lift tailgates on some trailers and many straight trucks
- Dock plates between rear of trailer and dock
- Slanted dockboards on which forklifts are driven onto rear of trailer

Use dock plates and dockboards safely
- Make sure dockplates or dockboards can support weight of forklift and cargo
- Make sure dockplates secure before driving onto trailer
  - Should be even with trailer and dock or accident can occur
  - Do not drive on unless trailer chocked or trailer can be pushed forward and forklift can fall between trailer and dock
- Make sure slanted dockboards secure before driving on with cargo
  - Forklift wheels can spin and cause improperly secured dockboard to flip back or collapse
  - Driver can be seriously injured

Student Problem Solving Exercise

Instructions

Present the five situations below and ask students to tell you which piece of cargo handling equipment should be used in each situation.

Cargo Handling Situation

1. Moving three cartons of books from the dock into a van.

   Answer: Hand truck

2. Moving a pallet of bags of fertilizer from a trailer to customers dock.

   Answer: Motorized pallet jack

3. Raising the bottom of a heavy file cabinet so that movers can get the furniture dolly under it to wheel it to the van.

   Answer: Pry bar or Johnson bar

4. Moving a pallet of bottled beverages to a different area of the warehouse.

   Answer: Pallet jack

5. Moving a four-legged drill press from the dock into an open van.

   Answer: Forklift

2. DEMONSTRATION OF CARGO SECURING EQUIPMENT (45 minutes)

Purpose

The purpose of this part of the lesson is to present samples of ropes, straps and chains for students to examine and discuss. Those ropes, straps and chains which will be used in the cargo securement exercise in Lesson 3 must be used.

Discussion and Demonstration of Use of Ropes

Allow students to examine three basic types of rope
1. Natural fiber rope
2. Manmade fiber rope
3. Wire rope

Point out the breaking strength and uses of each sample used

Demonstrate use of knots

- A good knot must not only be secure, but must be easily released in case of emergency
- So called "Hatchet knots," those knots which must be cut open, must not be used

Demonstrate a Trucker's Draw Hitch Knot

An example of a half hitch, which is a common trucker's knot follows, along with Visuals 12-19 to aid in its explanation.

Visuals 11, 12, 13 Steps In Tying a Truckers Draw Hitch

Explanation of How to Tie a Draw Hitch Knot

Used to secure cargo and tarps

Step 1. Pass line over top of load and around a tie-down hook

Step 2. Place a large loop across load line itself

Step 3. Take load line with right hand and pull up on it until you have a large bit in it

Step 4. With your left hand reach above loop and put half hitch in the load line

Step 5. The large bit is then put into the half hitch you just made

Step 6. At this point you have something to pull against, so now pull down to tighten the load line

Step 7. By putting loop into line, a round standing part or by putting a half hitch around the hook, you can keep everything tight

Step 8. Finally you must tie off this knot. To do so, put half hitch around to keep it from pulling through.

NOTE: Demonstrate knot in class or hold demonstration as part of range exercise in Lesson 3.

Discuss and Demonstrate Use of Straps, Chains and Chain Binders.

The purpose of this part of the lesson is to allow students a chance to examine the equipment that will be used in the cargo securement exercise in Lesson 3.

Provide samples of steel bands, nylon webbing and straps, steel cable and various chains and chain binders for student to examine
Explain breaking strength and uses of each item
Allow time for student questions and answers

NOTE: Actual demonstration and practice with tightening devices will occur in Lesson 3.

Preview of Lessons 3 and 4

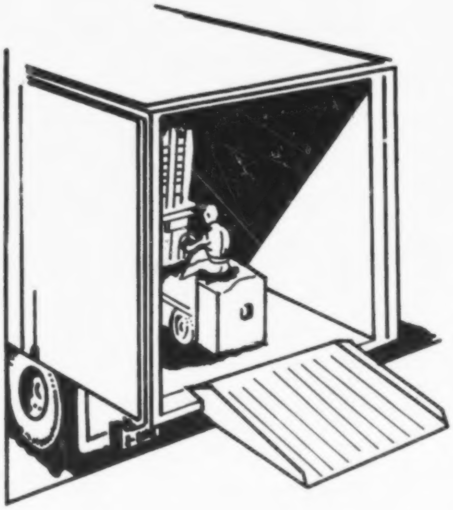
Inform students that they will participate in cargo securement exercise (Lesson 3)

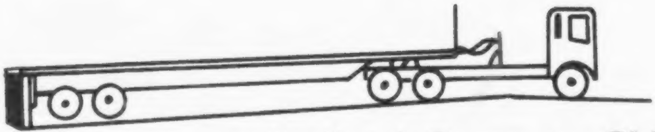
Students will
  Observe and discuss the loading and weight distribution of cargo
  Observe and practice tying down and securing loaded cargo with various equipment, dunnage, ropes, straps, chains, etc.
  Tie down and secure a tarpaulin over cargo (optional)
If field trip is scheduled (Lesson 4):
  Inform students that they will visit local freight handling operation
  Students will observe
    Loading and unloading of cargo
    Use of cargo
    Use of cargo handling equipment

Visual 1

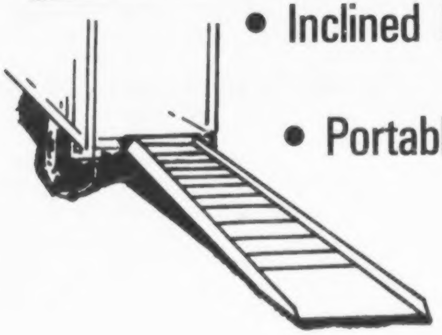
Types of Loading Docks

- Permanent Loading Dock (With Dockboard in Place)

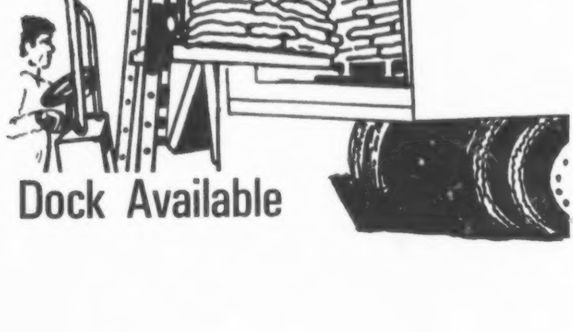




- Inclined Ramp to Shipping/Receiving Dock



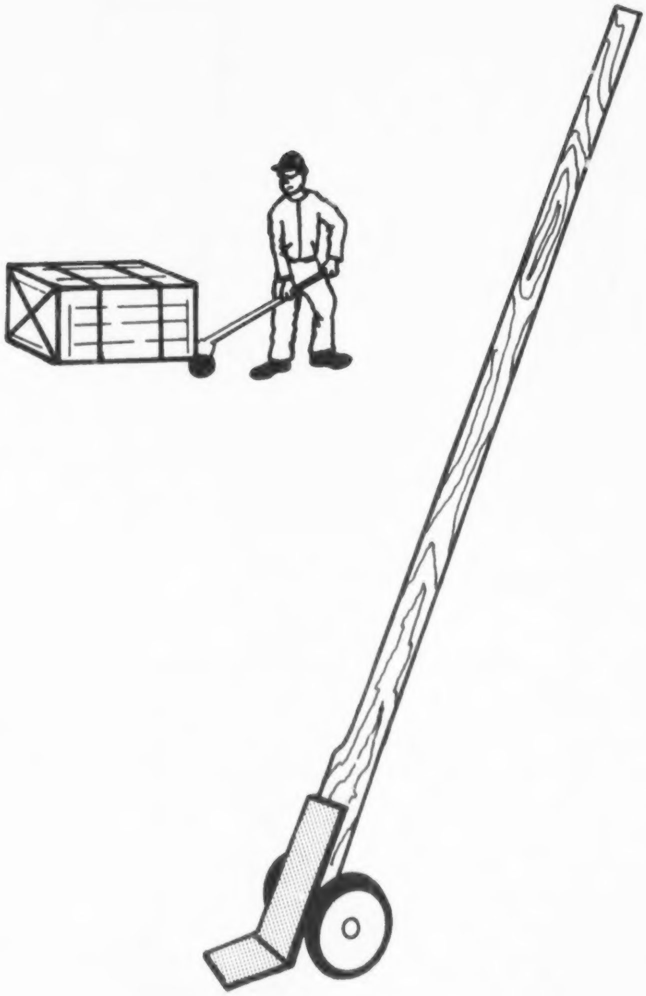
- Portable Loading Ramp



- Forklift Loading Where No Dock Available

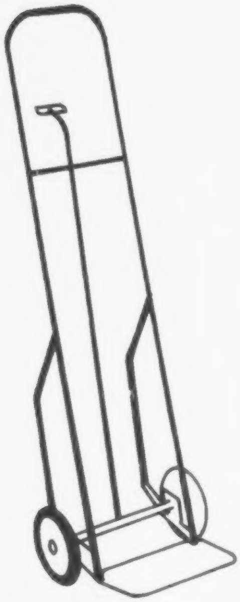
Visual 2

Lever Dolly or Johnson Bar

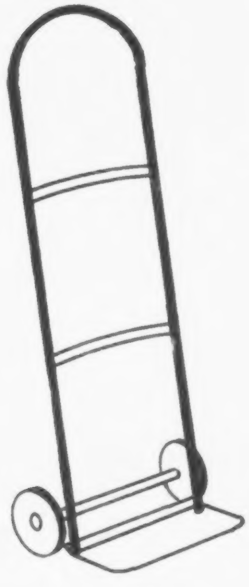


Visual 3

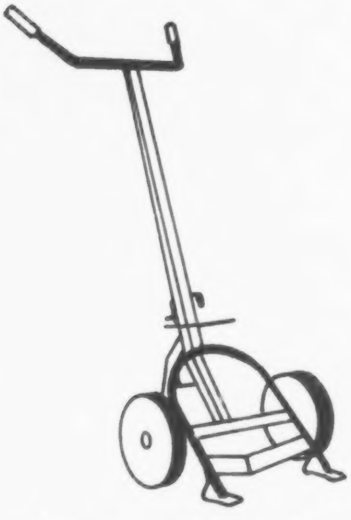
Types of Hand Trucks



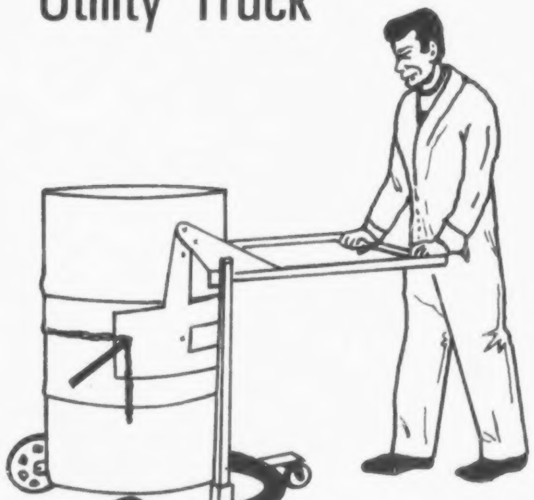
Carton Truck



Utility Truck



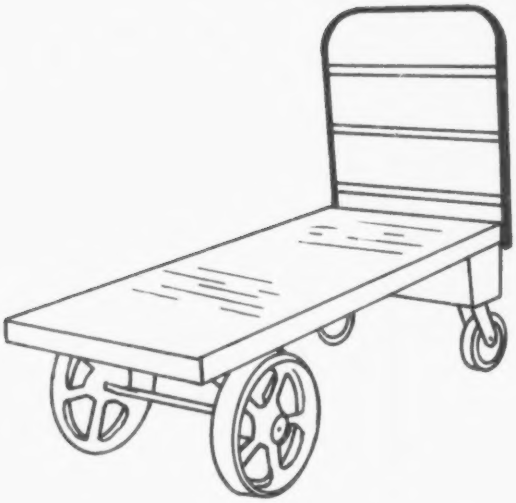
Drum Truck



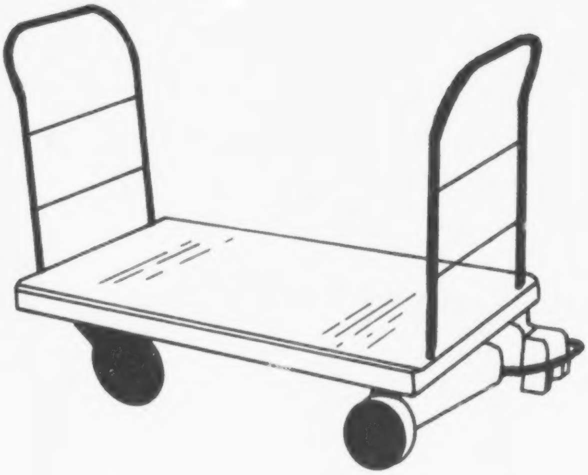
Barrel-Lift Truck

Visual 4

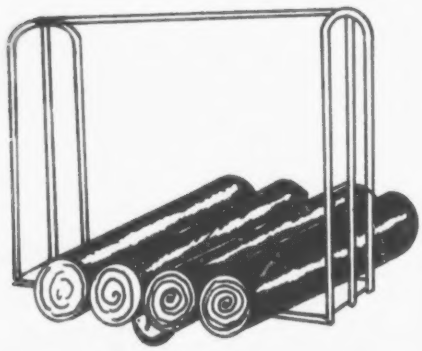
Platforms or Carts



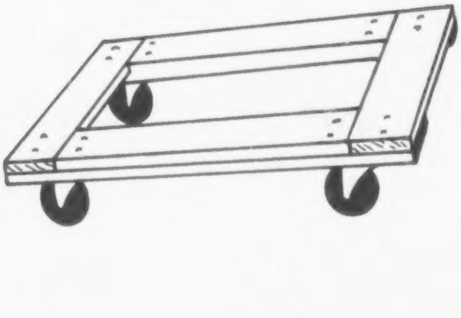
Platform Truck



Cart Used on Conveyor Line

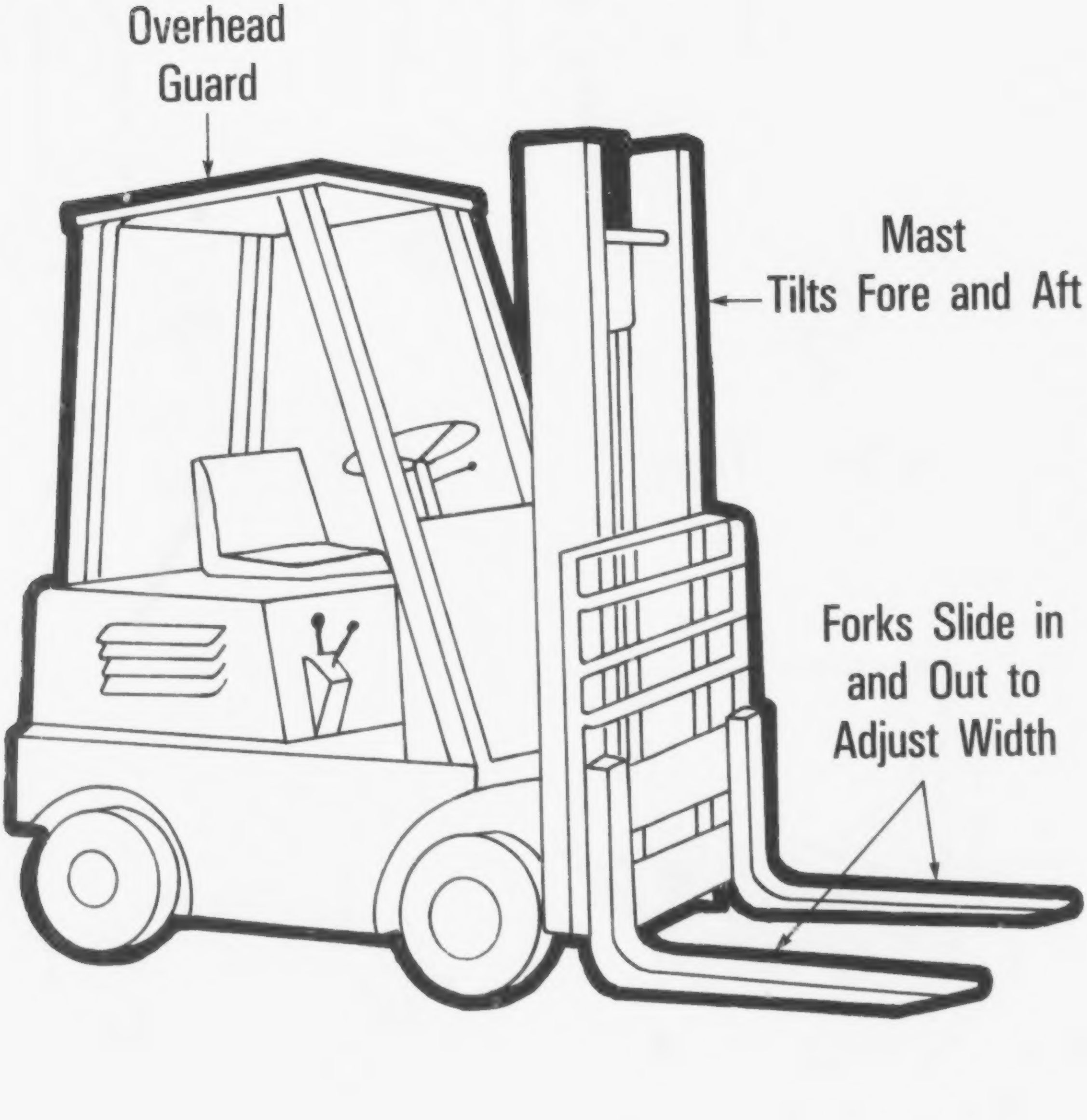


Rug Cart



Dollies

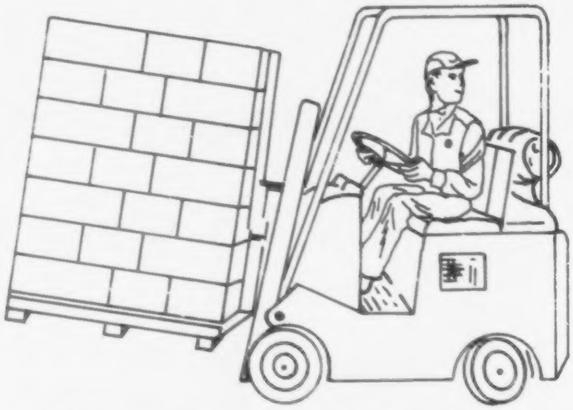
Forklift Truck Components


Overhead
Guard
Mast
Tilts Fore and Aft
Forks Slide in
and Out to
Adjust Width

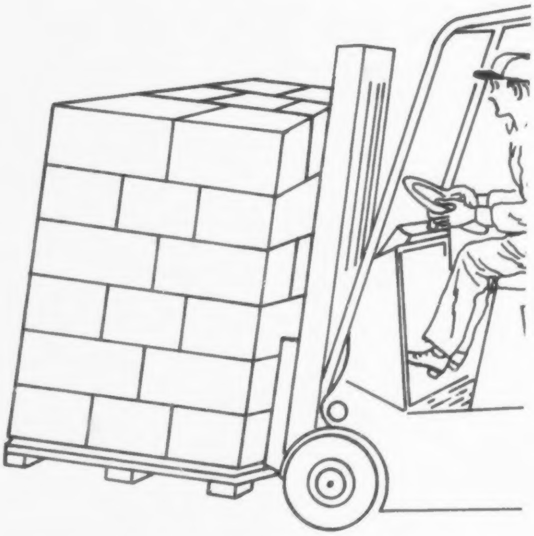
Visual 6

Steps of Safe Forklift Operation

- Look in Direction of Travel
- Check Overhead and Side Clearance
- Never Travel Blind, Go in Reverse if View Is Blocked
- Don't Drive Over Small Objects
- Shift Properly
- Carry Load Properly
- Load Carefully
- Park With Blades Flush to Floor



Load Blocks Forward
Go in Reverse

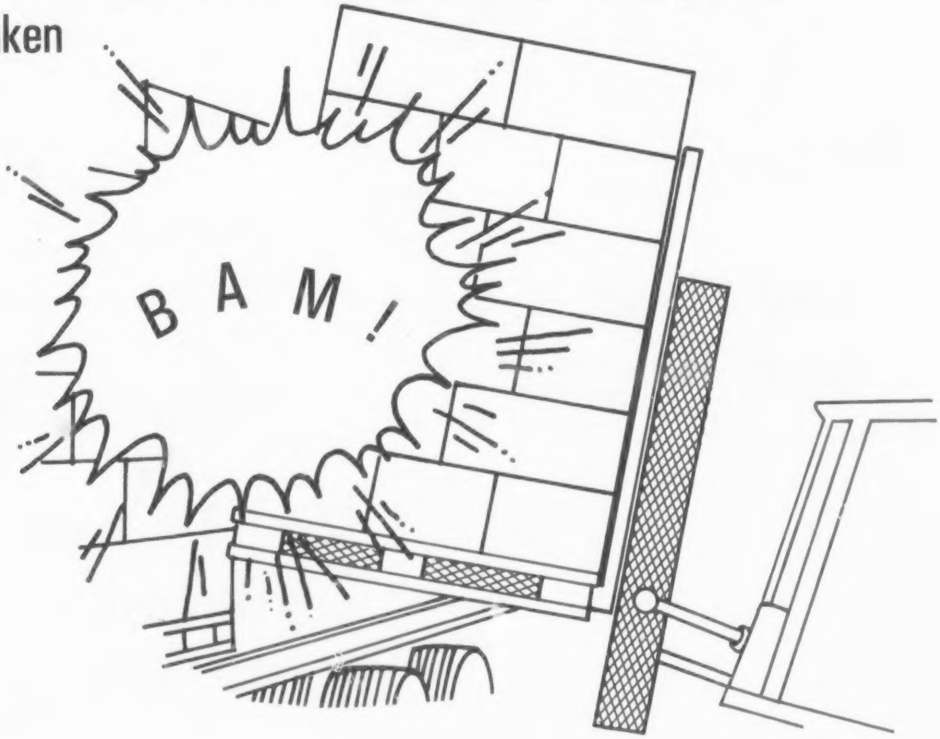


Must Tilt Back Slightly to
Cradle Load

Visual 7

Forklift Hazards

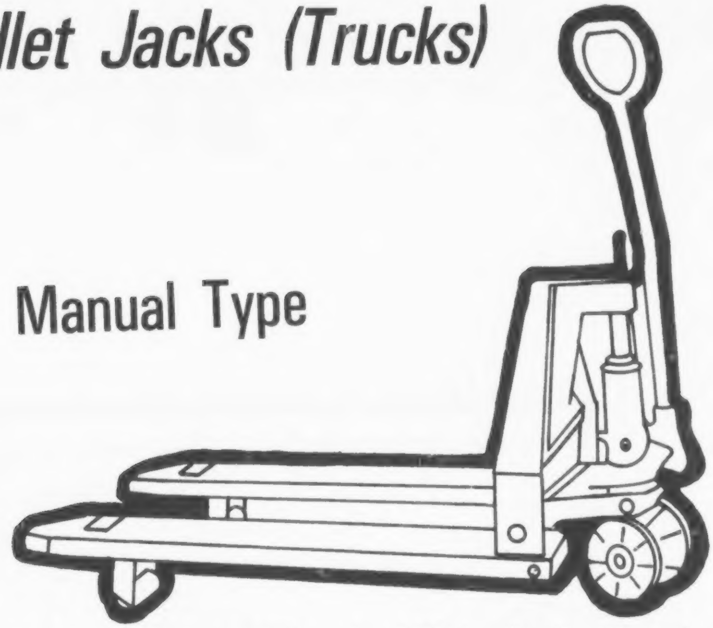
- Forks Not Long Enough for Load
- Gas and LP Engines Give Off Carbon Monoxide; Dangerous Working in Enclosed Area
- Blades Can Damage Cargo
- Passengers Riding on Forks or on Cargo Are a Hazard and Can Easily Be Injured
- Cargo and Trailer Sidewalls Can Be Easily Damaged if Care Not Taken



Visual 8

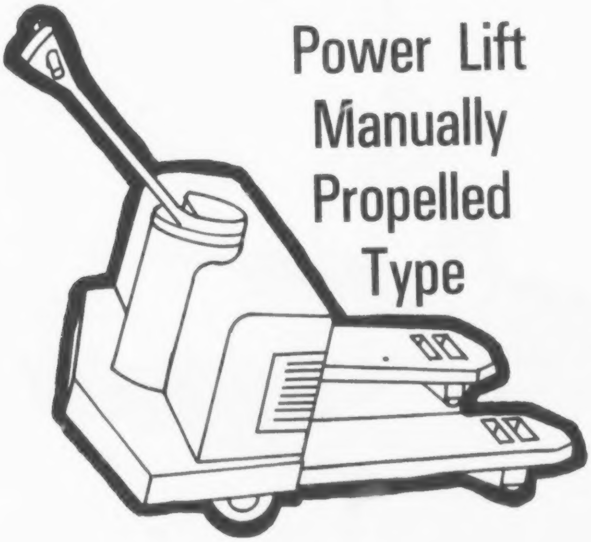
Pallet Jacks (Trucks)

Manual Type

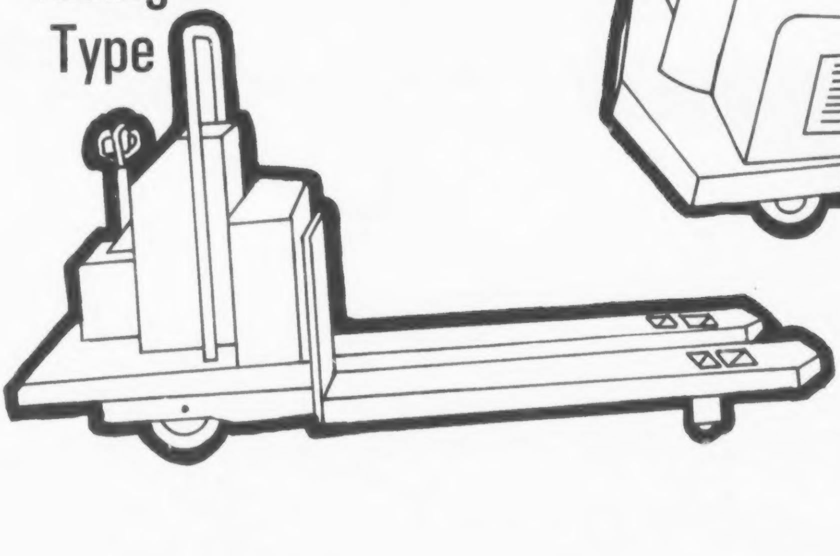


Polyurethane Wheels With Articulated Axle

Power Lift
Manually
Propelled
Type

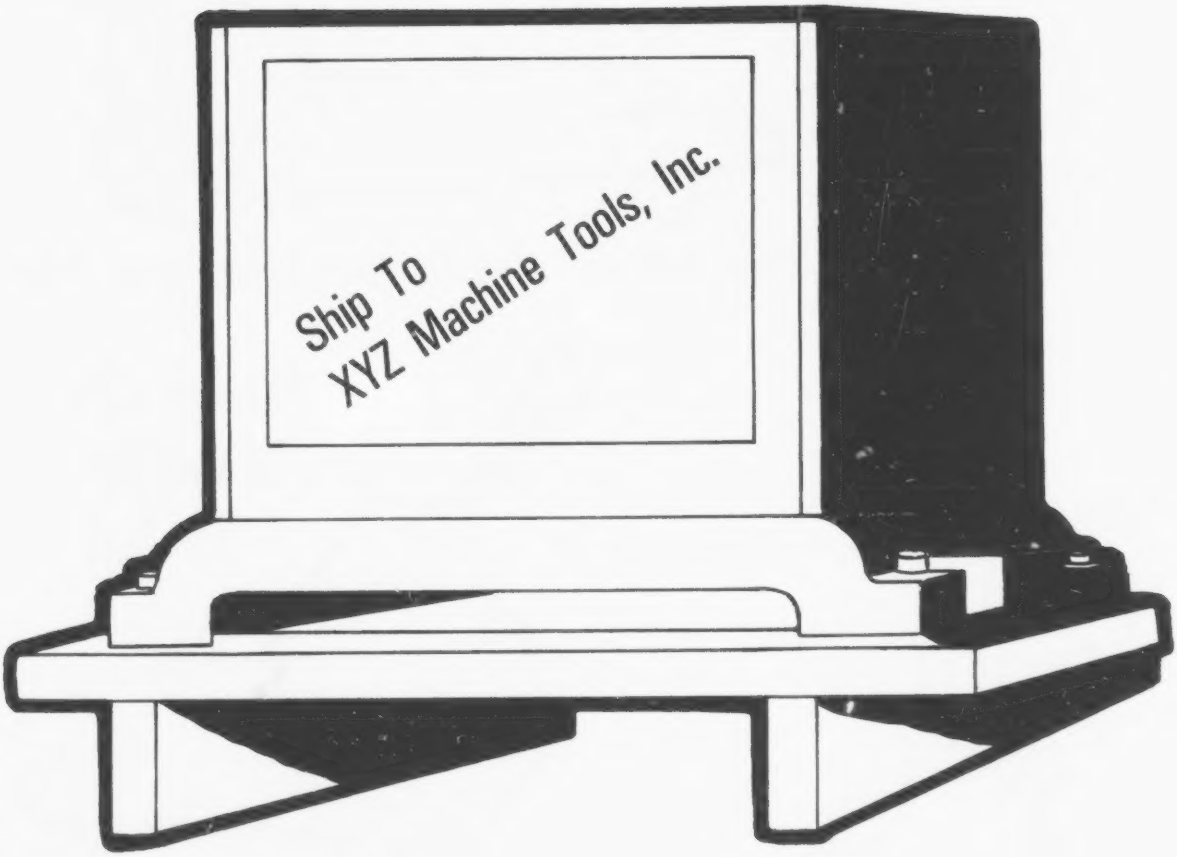


Motorized
Riding
Type



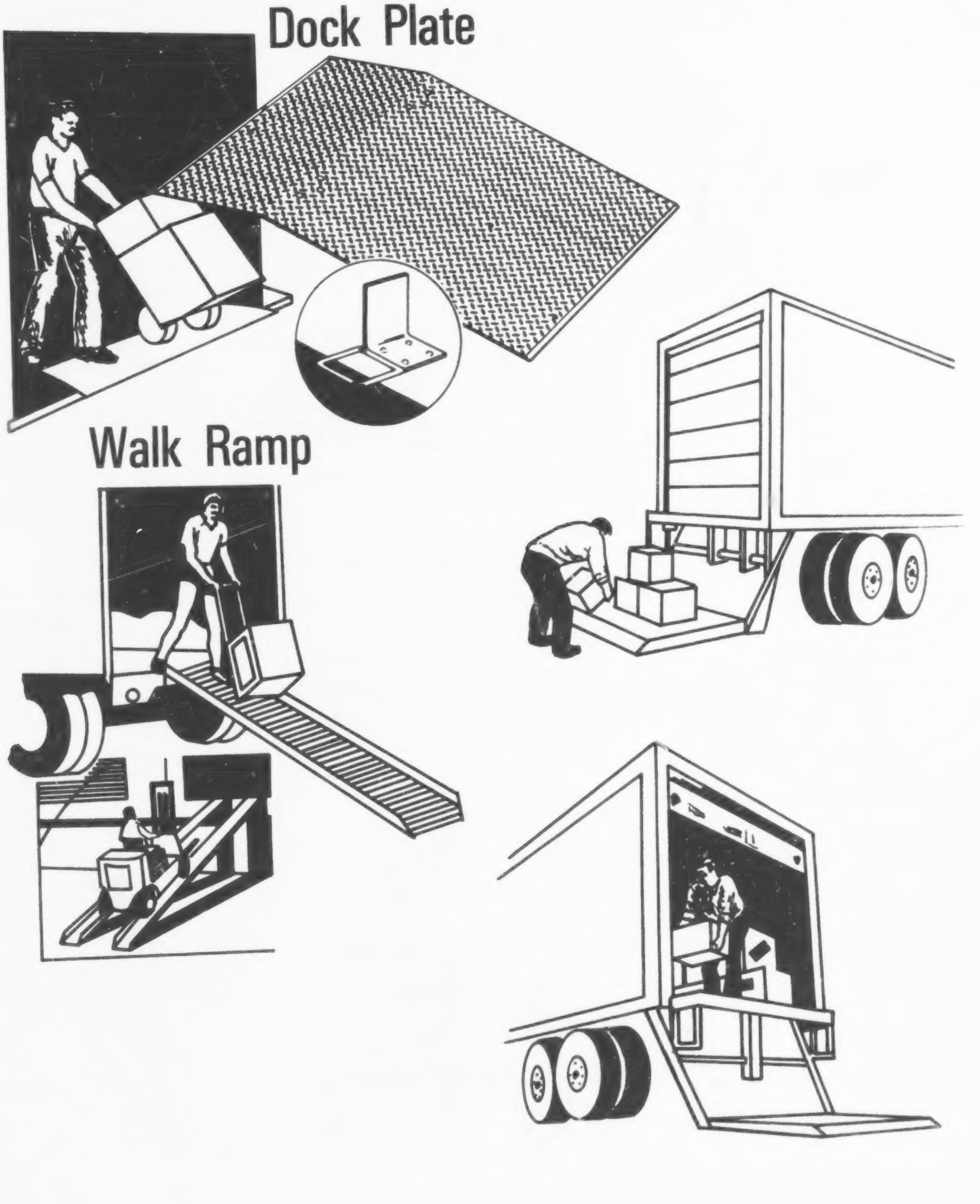
Visual 9

Heavy Duty Skid With Machine Bolted to It


Ship To
XYZ Machine Tools, Inc.

Visual 10

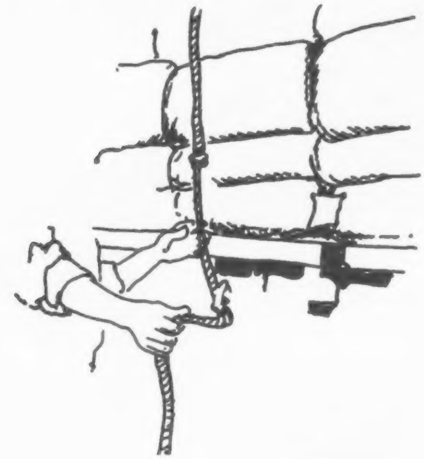
Dockplates, Dock Boards, Liftgates

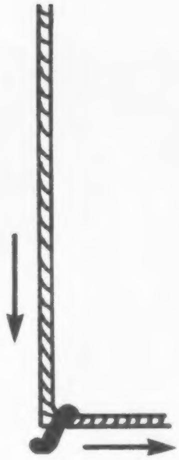

Dock Plate
Walk Ramp

Visual 11

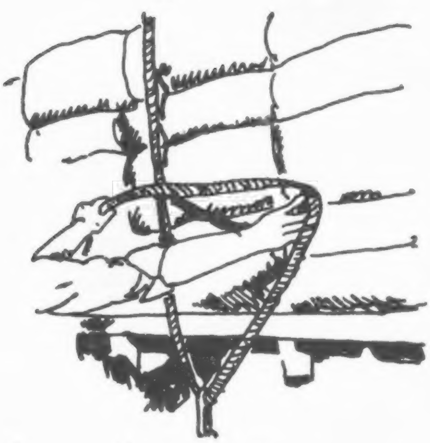
Truckers Draw Hitch

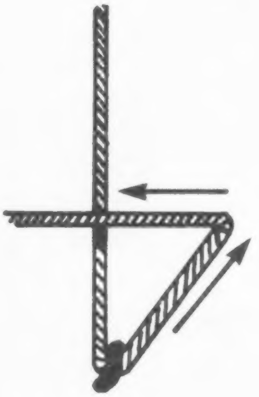
Step 1.



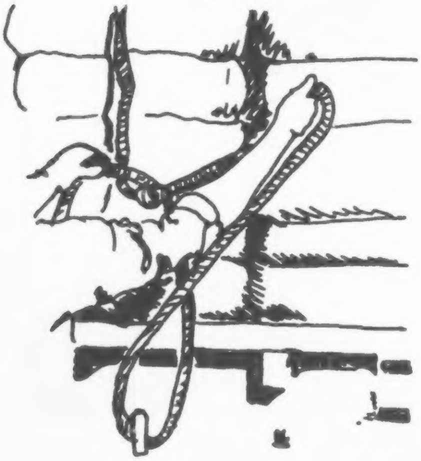


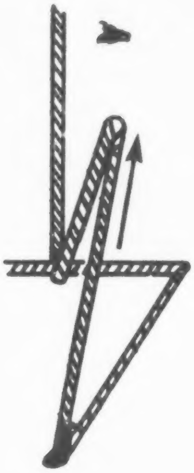
Step 2.





Step 3.

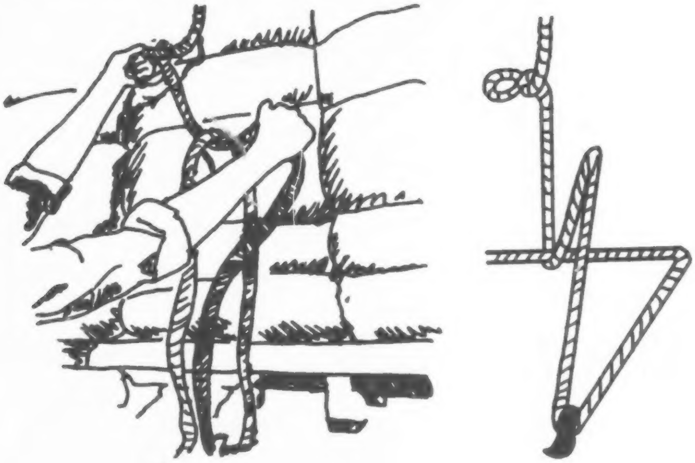




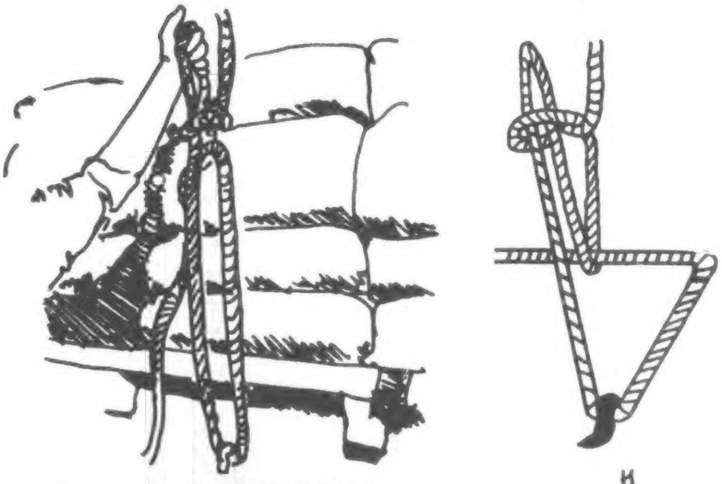
Visual 12

Truckers Draw Hitch

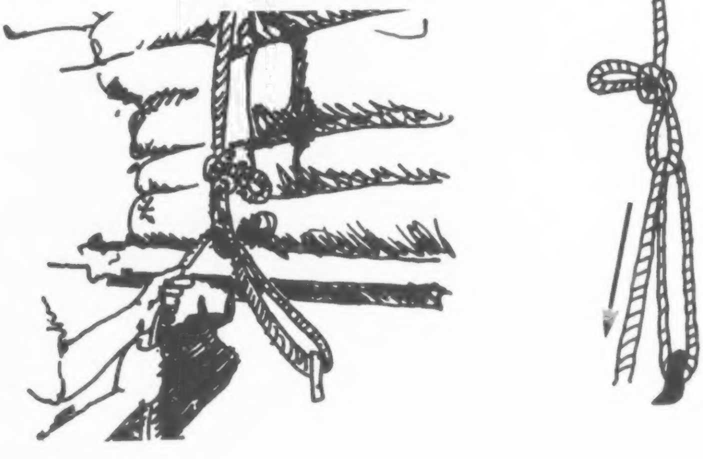
Step 4.



Step 5.

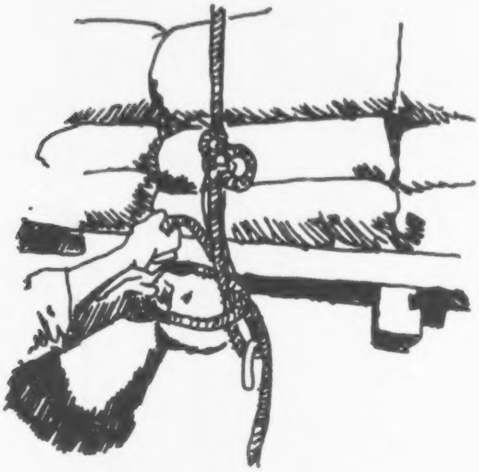


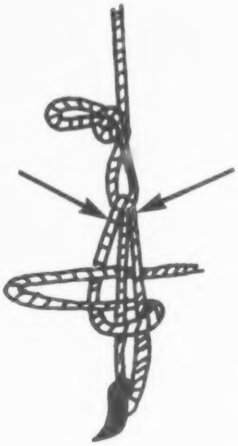
Step 6.



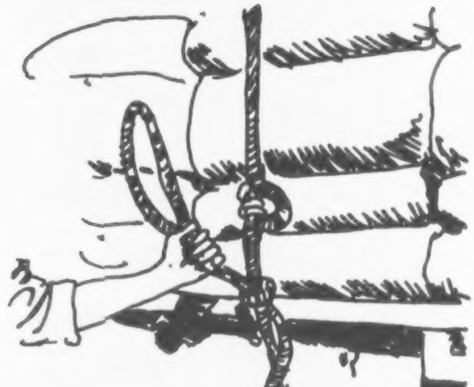
Truckers Draw Hitch

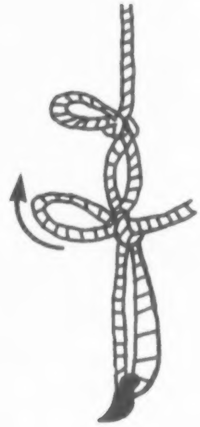
Step 7.





Step 8.





LESSON 3 DEMONSTRATION OF CARGO SECUREMENT (LAB)

Overview

Time Allotted: 2 hours

Prerequisites: Unit 5.1, Lesson 2

Purpose:

The purpose of this lesson is to give the students a demonstration of tying down and covering cargo on a loaded trailer. The last one or two "pieces of cargo" will be loaded on to the trailer. The instructor will then demonstrate how to secure the straps or chains on the trailer. Under his supervision, the students will then tie down the cargo. A tarpaulin will be added to cover the cargo, and the students will properly secure the tarpaulin. The exercise can be completed with available school equipment. Fork lifts and other cargo handling equipment are not required, but such equipment should be used and demonstrated if it is available.

Material

Instructional Aids

None

Student Material

No additional material required

Instructor Material

No additional material required

Equipment

Tractor and flatbed trailer

Real or simulated cargo-practice loading and tiedown can be easily done with empty rolls (spools) of wire, empty barrels and fiber drums, wood or heavy cardboard boxes (filled with scrap paper or bales of scrap paper) (rented or borrowed from a scrap paper dealer)

Cargo handling equipment - handtrucks, dollies, pallet trucks, pepe rollers and forklift trucks

Cargo tie-down devices for securing the "cargo" on the trailer, i.e., web strapping, ropes, chains and chain binders

A tarpaulin large enough to cover the "load" properly

Facilities

Loading dock or simulated loading dock

Content

Activity or Topic	Approximate Time
1. CARGO SECUREMENT: DEMONSTRATION AND PRACTICE	2 hours

1. CARGO SECUREMENT: DEMONSTRATION AND PRACTICE (2 hours)

Purpose

The purpose of this exercise is to demonstrate basic cargo handling principles and to give students an opportunity for some practice. There is no evaluation for this exercise.

Range Layout

Dock or simulated dock area in which loading of trailer is about to be completed.

Directions

Prepare for the Exercise

See that trailer is properly loaded, stacked and secured

Assure that weight is properly distributed

Have last several "pieces" of cargo ready to load

Make sure appropriate loading equipment is available and in good working condition

Inspect the tarpaulin to assure it is not damaged

Divide the Class into Groups of Four

Inspect and Discuss Cargo Load and Weight Distribution

Allow time for students to inspect load

Point out factors showing good weight distribution and cargo securement

Student Practice: Finish loading the cargo

Load last several pieces of cargo under instructor's supervision

Note: If equipment used requires special training, the instructor should do the loading while students observe

Student Practice: Tie the cargo down and secure the tarpaulin

Procedures

Tie the Cargo Down

- Use blocking, bracing, dunnage as required
- Demonstrate proper method of tightening tie down assembly using a variety of tie-down equipment, such equipment should include at a minimum:
  - chains and both type chain binders
  - webb strapping
  - rope
- Have students progressively tighten down the load under your supervision.
- If loads such as cardboard boxes are used, must be secured without "damage" to the cargo.
- This part of the exercise ends when the load is properly tied down, but not until all students have gained hands on practice.

Secure the Tarpaulin

- Have students put the tarpaulin on under your direction

  Slip tarp on from front to back
  Pull back so nose fits snugly
  Center so it hangs equally

- Demonstrate how to tie it down with the available rubber ties or rope.

  Have students take turns tying down each rope or rubber tie
  Assist as necessary

Allow time for student questions.

Evaluation

None

LESSON 4 OBSERVATION OF CARGO HANDLING OPERATIONS (LAB)

Overview

Time Allotted: 2 hours*

Prerequisites: Unit 5.1, Lessons 1 and 2

Purpose:

The purpose of this lesson is to expose students to actual cargo handling operations by a field trip to a local freight terminal or similar operation. If at all possible, arrangements should be made so that students can watch the loading and unloading of a tractor-trailer. This will provide an opportunity for them to see how cargo handling equipment is operated and how freight is stacked and secured.

This is an optional lesson.

Material

Instructional Aids

None

Student Material

No additional material required

Instructor Material

No additional material required

Equipment

Means of transporting students to the observation site

Content

Activity or Topic	Approximate Time
1. OBSERVATION OF CARGO HANDLING OPERATION	2 hours*

---

* Plus travel time

1. OBSERVATION OF CARGO HANDLING OPERATION (2 hours)

Purpose

Same as Lesson purpose, there is no evaluation for this lesson.

Layout

Facilities and equipment provided by local firms.

Directions

Selecting a Site to Visit

Review directions for field trip in Unit 1.9, Lesson 2

NOTE: It may be advantageous to combine both of these lessons into a single field trip

Site selection limited by time, travel, availability of facilities and willingness of local firms to cooperate

Select cargo handling operation that best meets your student needs to the extent possible.

General freight terminal will provide best learning opportunity for most students. It will provide wide variety of the most common cargo handling equipment to observe.

Specialist operations. If you are training students for the operation of special vehicles, such as tankers, try to observe that kind of specialized operation. Other specialized operations may be beneficial to the general student as potential job sources if they represent the kind of activity which is common to your area, e.g., livestock loading operations, bulk grain operations, etc.

Contact Sources and Making Arrangements for Visit

Explain purpose of visit and try to gain cooperation

Ask about the availability of company representative to conduct visit and give "guided tour" to explain operations and answer questions. As far as possible, guided tour should allow students to observe the following functions:

Examine shipping papers for loading/unloading operations (bills of lading, freight bills, cargo manifest)

Observe operation of cargo handling equipment

Observe loading/unloading of vehicles including checking cargo against shipping documents and stacking and securing freight on the vehicles

Arrange for time and length of visit
Ask about number of students who could be accommodated in field trip in terms of available facilities, ease in which students can observe cargo handling operations and safety factors.

Prepare for Field Trip

Divide students into large groups depending on arrangments made earlier
Instructor accompanies each group during field trip

Conducting Field Trip

Field trip must be structured according to arrangements made earlier.
Students should not just "wander around" and get in the way.
Each event they observe must be explained by the company representative or you, and time allowed for questions.
- If very limited time available for questions, you can hold a separate question and answer discussion after the student's "tour".

Observation and student questions should be relevant to the objectives of Unit 5.1.

Evaluation

None

Notes:

UNIT 5.2
CARGO DOCUMENTATION

UNIT 5.2 CARGO DOCUMENTATION

PURPOSE

The purpose of this unit is to enable students to understand cargo documentation and their responsibility as drivers in the preparation and handling of cargo documents.

OBJECTIVES

Performance Objectives

Students must be able to

- verify nature, amount, and condition of cargo on both pickup and delivery.
- verify information on bill of lading and properly record and report discrepancies and damage to the cargo.

Students must

- obtain appropriate signatures on delivery receipts and other required forms.
- properly prepare a manifest.
- meet requirements for hazardous materials and waste documentation.

Knowledge Objectives

Students must know

- the procedures for proper completion of freight bill, cargo manifest, bill of lading, and other required forms.
- the driver's responsibilities for making sure paperwork is properly filled out.
- possible consequences of improperly completed documentation.

Skill Objective

Student must be able to perform basic mathematical calculations in order to conduct accurate cargo counts.

Attitude Objectives

Students must believe that

- it is necessary that forms be completed accurately to prevent theft or claims.
- that hazardous materials documentation must be properly completed for public health and safety and to keep the company in compliance with law.
- that penalties for non-compliance with hazardous materials regulations can be very severe for both driver and employer

LESSONS

Lesson 1.	**Cargo Documentation: Basic Forms and Procedures (Classroom)**	**2 hours 45 minutes**
Lesson 2.	**Cargo Documentation Problems (Classroom)**	**2 hours**

LESSON 1 CARGO DOCUMENTATION: BASIC FORMS AND PROCEDURES (CLASSROOM)

Overview

Time Allotted: 2 hours 45 minutes

Prerequisites: Unit 5.1

Purpose:

The purpose of this lesson is to introduce the students to the content and format of three basic freight documents: bills of lading, freight bills, and cargo manifests. Other documents such as packing slips will be briefly discussed. The procedures related to these forms will be reviewed, i.e. pickup and delivery procedures, special handling procedures, etc. The lesson ends with a review quiz. This lesson also prepares students for the discussion and problem solving activities related to "Over", "Short" and "Damaged" type freight in Lesson 2.

Materials

Instructional Aids

Visuals 1-21

Student Material

Official U.S. Department of Transportation chart covering Harzardous Materials Warning Labels and Placards, in Unit 5.2 of Student Manual

Copy of Federal Motor Carrier Safety Regulations, Part 397

The Handling of Harzardous Materials and Waste, in Unit 5.2 of Student Manual

Instructor Material

National Freight Claim Council of American Trucking Associations, Inc. Booklet entitled "Motor Carrier Employees Handbook for the Prevention of Freight Loss and Damage" (or similar publications) as background source of information. There are other suppliers of such data - consult "List of Training Aids in this manual.

Federal Motor Carrier Safety Regulations - Parts 390-397.

Code of Federal Regulations, Title 49, Transportation, Parts 100-177 covering hazardous materials information.

Samples of all types of freight documents, i.e., freight bills, various types of bills of lading, trip manifests, hazardous warning Labels/Placards, for student to examine.

Content

Activity or Topic	Approximate Time
1. BASIC DEFINITIONS AND FORMS	35 minutes
2. FILLING OUT BASIC SHIPPING DOCUMENTS	25 minutes
3. PICKUP AND DELIVERY PROCEDURES	35 minutes
4. DOCUMENTATION AND PLACARDING FOR HAZARDOUS MATERIALS AND WASTE	45 minutes
5. REVIEW	25 minutes
	2 hours 45 minutes

1. BASIC DEFINITIONS AND FORMS (35 minutes)

Visual 1 Types of Motor Carriers

Definitions of Motor Carriers

Private Carrier

Transport their own goods or products, e.g., soft drink bottling company, bakery, etc.

For-Hire Carrier

Transports goods or products owned by others for a fee or freight charge
Three types of for-hire carriers

Common Carrier
Required to be licensed by Interstate Commerce Commission (ICC)
License called certificate of Public Necessity and Convenience
Conveys "operating rights" which specify what commodities can be carried between one area and another

Contract Carrier
Also gets operating rights from ICC
Specifies name of specific shipper(s) for whom a contract exists between shipper and carrier

Exempt Commodity Carrier
Transport non-regulated or "exempt" commodities, e.g., usually agricultural or seafood products
Must be licensed by ICC to do so

Who Needs Cargo Documentation

Private Carriers

Since they transport their own products and raw materials, no legal documentation required
Only company documentation required
EXAMPLES: Delivery receipt--customer who receives goods signs delivery receipt to acknowledge he received goods from driver
Scale ticket--if cargo transported between two facilities in same company, driver many only need scale ticket which shows weight of cargo

For-Hire Carriers

Since they are hauling goods for others, legal documentation is required
EXMAPLE: Shipper wants to ship 300 color television sets
Cannot entrust delivery without some kind of contract guaranteeing date of delivery and safety of cargo
Trucker, in turn, needs contract which states kinds of services required and how much he will be paid

If driver is employed in business which requires freight documentation, must learn what documents required and how to handle them

Basic Information Included in Remainder of Lesson

- Procedures for filling out basic shipping documents
- Pickup and delivery procedures
- Procedures for hazardous material

Visual 2 Key Freight Terms

Basic Terms Related to Freight

Goods being shipped referred to by several, often interchangeable terms
- Freight--anything being transported
- Lading--the freight on a vehicle that makes up the load
- Cargo--freight on a vehicle
- Product--manufactured or grown goods for shipping, e.g., bakery goods, soft drinks
- Commodity--any article for commerce or trade that is shipped, e.g., steel, food items
- Consignment--a shipment sent to a particular individual or agency

The parties involved
- Driver must be able to recognize roles of parties especially as related to shipping documentation
- Shipper or Consignor
  - The person or company who is shipping the goods
- Motor Carrier or Carrier
  - The individual or company in the business of transporting goods
- Receiver or Consignee
  - The person or company to whom the goods are being shipped, or consigned to
- Freight Broker
  - A person or company who arranges transportation of goods
- Freight Forwarder
  - Company that puts together small shipments from various shippers into larger shipments
  - Ships to break bulk statiaons where shipment is broken down and sent to proper destinations
- Originating Carrier or Pickup Carrier
  - The carrier who picks up a shipment from shipper
- Connecting Carrier
  - The carrier who delivers shipment to interchange point where goods are transferred to another company to continue shipment
- Delivery or Terminal Carrier or Agent
  - The carrier who delivers the shipment to the consignee

Visual 3 Key Shipping Documents

Definitions of Documents

The following definitions relate to documents that will be described in detail later.

Bill of Lading

Written transportation contract between shipper and carrier
Identifies freight, who it is consigned to, place of delivery and terms of agreement.

Straight Bill of Lading

Provides that goods on bill be delivered to consignee indicated
Consignee does not have to surrender his copy to get goods

Order Notify Bill of Lading

Negotiable document which enables shipper to collect before shipment reaches destination
Indicated consignee must surrender his copy of bill of lading to get shipment

Through Bill of Lading

Covers shipment by more than one carrier at fixed rate for entire service

Manifest

Document describing contents of an entire shipment on a vehicle

Packing Slip

Detailed list of packed goods prepared by the shipper

Delivery Receipt

Receipt signed by customer receiving goods to indicate accepetance of goods from driver

Warehouse Receipt

Receipt for goods placed in a warehouse

Visual 4 Terms Related to Charges and Services

Transportation Charges and Services

Charges

Both goods and transportation services have to be paid for
Payment for goods usually arranged between shipper and consignee; sometimes carrier has to collect
Carrier arranges for payment of transportation services
Cannot deliver or relinquish possession of freight unless charges paid or arrangmenets made for payment, including any payments carrier collects for shipper

Types of Payment

Prepaid
- Transporation charges paid or will be paid at shipping point

C.O.D.
- Transportation charges or payment for goods made at delivery point
- Driver must know company policy and procedures for C.O.D.

Order notify shipment
- Payment for shipment of goods on Order Notify Bill of Lading
- Must collect copy of bill of lading from person receiving goods as payment for goods

Transportation Rates

Basis of Rates

- Rates are charges
  - Per unit of weight, e.g. pound
  - Per unit of distance, e.g. mile
- Rate x weight and distance = charges
- Rates based on value of cargo and services performed by carrier

Value of Cargo

- Actual valuation--actual value of goods shown on bill of lading when rate applied is dependent on that fact
- Released valuation--value of goods set by shipper as limits of carrier liability and as basis of rates charged

Weight and Distance

- The primary determiner of shipping charges
- Rate expressed in terms of
  - Per pound of cargo
  - Per mile of travel

Services performed by carrier

- Rates on which transportation charges also based on type of service
  - Tariffs--list of services that common carrier performs for public and rates for those services

Type of rates

Minimum Rate

- Lowest lawful rate that may be charged
- Each truck has minimum truckload weight which is quantity of freight necessary to qualify for shipment

Maximum Rate

- Highest rate that can be charged for type of shipment
- LTL (less than truck load) and exclusive use of truck
  - Shipper may request exclusive use of truck
  - Freight from other shippers cannot be on truck
  - Bill of lading will specify if exclusive use of truck

        - When exclusive use of truck, shipment is often LTL or less than truckload
        - Higher rates charged for LTL and exclusive use of truck
    - Mixed truckload rates
        - A truckload of different articles in single shipment by shipper
        - Rate for mixed load is applied for entire consignment
    - Expedited services
        - Superior or faster service required by shipper and so designed on bill of lading
        - Rates for expedited services are higher
        - Such service frequently involved LTL and exlusive use of truck
    - Redelivery
        - Additional rates charged if shipment has to be delivered to other than destination on bill of lading

Duties

- Government tax on import/exports which must be collected will be indicated on bill of lading
- Often these goods are "in-bond"
    - Goods on which duty or tax is due
    - Carried by bonded carrier which guarantees duty will be paid
    - Driver must know procedures for collecting duties for in-bond cargo

Services and Surcharges

- Basic rates, services and duties are determined in advance by rules and agremeents between shipper and carier
- Based on such things as type of cargo (valuation), weight, destination, type of service, e.g., LTL, exclusive use of truck
- Additional services and rates may be specified on bill of lading
- Driver must know what these mean and must perform service as required

Inside Delivery Vs. Tailgate Delivery

- Bill of lading indicates whether freight delivered inside or picked up at tailgate
- Charges differ, driver must perform as specified

Helper Service

- Bill of lading will specify who will provide and pay for helpers, if any, e.g., help loading, unloading freight

Residential Delivery

- Bill of lading will specify if delivery to be made at residential address, conditions of delivery and method of collecting payment

Dunnage and Return Dunnage

- Weight of dunnage usually specified separately on bill of lading
- Usually no charge for dunnage weight
- If "return dunnage specified" driver must retain dunnage and return to carrier or shipper as indicated

Storage and Delay Charges
- Additional charges are made for storage or if carrier is delayed from making delivery

Demurrage
- Means detention of vehicle containing freight beyond a stipulated time
- Payment made to carrier for such a delay
  - Also called detention time

Recap

If driver becomes involved in pickup or delivery of freight requiring freight documentation, must learn
- Freight terms and meanings
- How to use appropriate freight documents
- What instructions on freight documents means, especially those related to collecting payments

2. FILLING OUT BASIC SHIPPING DOCUMENTS (25 minutes)

Basic Shipping Documents

Many terms and documents related to freight documentation
Three basic documents need detailed review

Bill of Lading
- Primary pickup form
- Contract between shipper and carrier
- Initiated by shipper
- Lists goods and conditions of shipment

Freight Bills
- Primary delivery form, common carrier Inititated by carrier, permanent record
- Information similar to bill of lading
- Delivery receipt by person receiving freight

Manifest
- List of freight bills going to one locality

Visual 5 Example: Uniform Straight Bill of Lading

Bills of Lading

General Definition

- Lading means cargo or freight
- Legal document
- Regulated by Federal law
- Shows process of shipment, e.g., freight consigned to carrier by shipper to deliver to consignee at such and such destination

Two Basic Purposes

- Record of shipment
  - Tells what shipment includes, e.g., 10 cartons of toys
  - Used to account for goods
    - Shows ownership
    - Helps trace when lost/stolen
    - For insurance claims (shows value)
  - Description of lading determines the freight charge
    - Must be accurate so carrier can collect proper revenue
- Contract between shipper and carrier
  - Basic terms of contract state freight will be moved from one point to another without loss, damage or delay
  - Contract indicates
    - Origin, destination and, consignee
    - Terms and conditions of shipment, e.g., instructions for handling
    - How merchandise will be paid for

Uniform Straight Bill of Lading

- Most common type of bill of lading

- Nonnegotiable contract
  - Parties cannot change content
  - Freight must be delivered to consignee or authorized representative (e.g., company or authorized employees)

- Has three copies
  - Copy 1 - original - sent to consignee
  - Copy 2 - shipping order - copy for carrier
  - Copy 3 - memorandum - copy for shipper

- Format of straight bill of lading by name of item or section
  - Motor carrier - name of carrier agreeing to contract
  - Name of shipper and date
    - Carrier fills this part when he accepts shipment
    - Describes terms on which goods were received by carrier "In apparent good order...etc." (driver needs to inspect condition of goods)
    - Date
      - Must be same as actual pickup date (by law)
      - Purpose
        - Tariffs and other freight charges based on that date
        - Basis for deciding if shipment was delayed

NOTE: Cannot specify delivery date on bill of lading)

  - Name of consignee (e.g., consigned to ABC company)
    - Filled out by shipper
    - Must be complete and clear address
  - Routing
    - When more than one carrier or mode involved (e.g., rail, water)
    - Routing of carriers indicated here

- Delivery carrier, i.e., name of motor carrier actually making delivery
- Collection information, must indicate how merchandise will be paid for
  - Prepaid (driver not concerned with collecting)
  - COD (driver must know COD procedures)

Description of Articles

- Key section
- Lists and describes freight
- Filled out by shipper (but verified by carrier)
- Indicates
  - Number of packages
  - Description of commodities
  - "Check" column for driver to initial if shipment matches actual freight
  - To note damage or other problems

Freight Charges

- Prepaid (by shipper)
- COD (by consignee--driver collects)

Signatures

- Contract not valid without signatures
- Driver signs for motor carrier when he picks up freight
- Shipping clerk or other agent signs for shipper

Contract Information on Back of Shipping Rrder

- Detailed contract information on back of shipping order (copy 2 of bill of lading)
- Driver need not become involved in these details
- Only needs to know:
  - Basic bill of lading procedures
  - Company policy and required procedure

Visual 6 Definitions: Order Notify Bill of Lading, Government Bill of Lading, Household Goods Bill of Lading

Order Notify Bill of Lading

- Special type of bill of lading
- Basic content same as straight bill of lading
- Key differences:
  - Color of Copies
    - Copy 1. original - yellow
    - Copy 2. shipping - blue
    - Copy 3. memorandum - white
  - Negotiable document, ownership of shipment can be transferred by valid sale of document
  - Delivery of Shipment
    - Straight bill of lading
      - Must deliver to consignee indicated
      - Consignee usually keeps original copy of bill of lading

- Order notify bill of lading
    - Freight delivered to holder of original (yellow) copy
    - Holder must surrender yellow copy before freight delivered just like a payment for freight
    - Back of yellow copy must be properly endorsed
        - By shipper
        - By bank or financial institution that has already paid shipper

Government Bill of Lading

- Special form issued by government
- Similar to straight bill of lading
- Key differences:
    - No money collected at times of delivery
    - Consignee surrenders original copy of bill lading
    - Original copy used by carrier for collection of charges

Household Goods Bill of Lading and Freight Bill

- Most moving companies have own bill of lading form
- Combined bill of lading and freight bill
- Meets company needs, customer needs, legal requirements related to obtaining weight of load

Visual 7 Example of Freight Bill

Freight Bills

Description

- Made up by carrier from information taken from bill of lading
- Normally seven copies
- Driver primary concerned with copy 1, delivery receipt copy
- Basic function of freight bills from drivers point of view
    - Used as a delivery receipt, proof of delivery
    - Consignee must sign delivery receipt copy of freight bill
        - Signature indicates shipment accepted in good order
- Prepaid freight bills--charges paid in advance by shipper
- Collect or destination freight bills--charges collected at destination
- Pro numbers
    - Abbreviation for the word "progressive"
    - Usually prefixed to freight bill numbers
    - Driver will often be referred to pro numbers as way of identifying freight bill

Visual 8 Example of Cargo Manifest - Front

Visual 9 Example of Cargo Manifest - Back

Cargo Manifest

Driver receives all freight bills (normally in delivery order)
Also receives cargo manifest

List of freight bills by assigned number
Manifests normally reviewed next day by supervisor to check on driver's productivity (work performance)

Other Documents Related to Shipping

Invoices

Bill from shipper
Lists merchandise and prices
May be included when driver has to collect for merchandise, e.g., the bill states what you have to collect for merchandise

Packing Slip

Report of person who packed order
- Usually wholesale merchandise shipped to retailer
- Consignee should check actual load against packing slip

3. PICKUP AND DELIVERY PROCEDURES (35 minutes)

Visual 10 Steps in Pickup of Freight

Pickup of Freight

What Driver Signature Means on Bill of Lading

- Acknowledges company accepts contract terms, legally binds the company as driver is acting as their agent
- Accepts responsibility for freight
  - Actual freight matches amount/kind on bill of lading
  - It is in good order
- What this means: Count, inspect, determine if freight properly described before signing

Counting and Inspecting Freight

Count Pieces
Don't estimate or take the word of anyone
EXAMPLE: You are picking up 1,400 cases of canned soup from the Yummy Soup Company and you check and find that first pallet put on your trailer has 64 cases on it

You determined this by:
- Counting number of cases in a layer, which turned out to be 16
- Then you counted the number of layers on the pallet which was 4
- Multiplying 16 times 4 you got 64 cases per pallet

Ask students:
- At 64 cases per pallet, how many pallets should they be putting on your trailer?

Answer:
21 full pallets, plus one with only 56 cases on it = 1,400

Now that you have established that there are 64 cases per pallet **DON'T** make the mistake of assuming all other pallets will have the same number of cases on them

Check, check and recheck

This means you must use a tally sheet for maintaining a running count of the number of pieces being loaded

Remember, your miscount subjects your company to a freight shortage claim

Get the Right Pieces

Make sure to pickup what is listed on bill of lading

Example:
Freight bill says 8 crates of automotive parts for A.B.&C. Auto Parts Store in Chicago

Check all 8 crates to make sure that they all are marked for A.B.& C. in Chicago and not some other store or in some other city

Make sure the 8 crates you get are the 8 specific ones - not something else

When in doubt, check it out

Remember drivers that cause freight claims don't stay employed long

Make Sure Freight is Properly Marked (to aid in checking against bill of lading)

Name of shipper and consignee--cover or erase other names that might be confused and result in loss of shipment

Special handling markings coincide with bill of lading requirements--If bill of lading says fragile, freight piece should say fragile

COD and "to order," i.e., order bill of lading so marked--Each COD or "to order" freight piece must be marked

Refuse or Notate Freight That is Short, Damaged, Poorly Packed, etc.

Know the company's policy about pickup if short/damaged freight

Refuse or notate on bill of lading (depending on company policy)
- Poorly packed freight (tied with rope or string)
- Heavy items in thin cardboard boxes
- Freight that appears to be damaged
- Refuse freight that is wet or leaking--will damage other freight
- Don't accept load "at shippers risk"

General Rule: freight that is not in good condition or poorly packed should either be refused or so noted on the bill of lading
- Make sure notes are on all 3 copies
- Make sure shipper or agent initials all notes

Make Sure Freight is Loaded Properly

Damage or loss could occur between inspection and loading

- Be there when cargo is loaded
    - Make sure it isn't mixed up with freight
    - Watch for poor loading or stacking that could lead to damage
    - Watch for rough or poor handling that damages cargo
    - Prevent pilferage or dropped cargo

Inspect cargo amount and condition again if necessary

Make Sure Bill of Lading Signed Properly

- Don't sign until satisfied with:
    - amount of cargo
    - condition of cargo

When in doubt call dispatcher or supervisor for instructions

- Signing the bill of lading
    - Fill in pickup date and other information in section required
    - Get shipper's agent to sign bill of lading in proper place (full signature, not initials)
    - Driver signs in proper place
        - Full name
        - Company name
        - Circles number of pieces picked up
        - Date
    - Driver retains shipping order copy only

Visual 11 Sealed Truck and Bill of Lading Noted: "Shippers Weight, Load and Count"

Shippers Weight, Load and Count

- Shipment may be loaded and checked by shipper
    - Trailer sealed
    - Shipper accepts responsibilty for weight, loading and count
    - Bill of lading must bear notation "Shippers weight, load and count"
    - Serial numbers of seals must appear on all 3 copies of bill of lading
- Driver does not have to count/inspect load, but must assure above conditions met before signing
- Delivery of sealed load
    - Seal must be checked to make sure numbers agree with bill
    - May be done by driver or may require designated person at delivery terminal
    - Some sealed cargos require a signature at delivery verifying that seal numbers match and seals were intact
    - Driver must make sure he gets signature before seals broken
    - If seals are broken enroute because of fire, vandalism, etc., call dispatcher or supervisor for instructions

Visual 12 Steps in Delivering Freight

Delivery of Freight

- Key points to remember when delivering freight
  - Make sure to deliver to the right person
  - Handle payment for merchandise and freight charges properly
  - Get the proper signatures on the freight bill and bill of lading
  - Follow company policy about shorts/damages or other problems

Unload and Check the Freight

- Exercise care in unloading so freight doesn't get mixed up--cartons have been delivered to wrong place
- Have an orderly system for checking and unloading freight
  - Remember, it's still driver's freight until consignee signs for it
- Make final check of freight before it is unloaded--check it against freight bill
- Check each piece as it is unloaded
  - Get cooperation of consignee so unloading is systematic, e.g., too many helpers unloading can cause driver to lose track of the count, consignee can claim shortage
  - Match each piece against freight bill as it comes off
  - Have consignee check freight at the same time, if possible
    - If not, will have to check it again before he signs
    - Keep the freight altogether until he does check it

Collect Any Freight or Merchandise Charges Due

Freight Charges

- Bill of lading and freight bill says COLLECT
  - Get cash, certified check or money order (based on company policy)
  - Checks, money orders made out to company (carrier)
  - Accept charge accounts only if verified ahead of time with company
- Prepaid
  - Shipper has paid costs
  - No further action

Merchandise Charges

- Check bill of lading or freight bill for method of payment
- If C.O.D.
  - Must receive cash, certified check or money order (see bill of lading instructions)
  - Made out to shipper or designated party (See bill of lading instructions)

Order Notify Bill of Lading

- Do not release cargo before obtaining yellow copy of bill of lading
  - Copy must be duly endorsed (by shipper or bank)
  - Treat it the same as cash or check
  - It is payment for the merchandise

Consignee cannot take control of shipment until charges paid
- Do not release shipment until paid
- Do not let consignee sign freight bill or bill of lading until paid

Problems if Cargo is Over, Short or Damaged (O.S.& D.)

General rule--Follow company policy

Some dos and don'ts of O.S.& D's

- Do not let consignee open piece of cargo to inspect for damage until all charges paid, it is signed for

- Do not let consignee split load (accept some/reject some) without authorization from company

- When consignee signs freight bill Delivery Receipt, he has accepted freight in good order

- Any notations about cargo should be based on company's policy

- Don't let consignee add notations such as "cargo subject to future checks"

NOTE: Full discussion of protecting against O.S.& D. cargo claims and handling of O.S.& D. claims occurs in Lesson 2 of this Unit.)

Special Pickup and Delivery Situations

Picking up Split Shipments

Single shipment picked up at more than one address
Receipted bill of lading must be furnished at each address

Delivering Split Shipment

Bill of lading must contain complete address for each delivery (e.g., shipment going to several locations)

Be Especially Careful with Split Shipments

Easy to get mixed up
Be sure to check each piece against freight bill very carefully
The wrong carton could end up in the wrong city

Interline Freight

Picking up freight from another motor carrier or delivery of freight to another motor carrier

Use same care as if pickup from shipper
- Check carefully for any damaged or shortage before signing connecting carriers freight bill
- Do not sign freight bill if connecting carrier refuses to list or acknowledge proper exceptions, e.g., shortages, damage

Sometimes this involves "equipment interchange", i.e., you leave your company's trailer (loaded with freight) with the connecting carrier to pull to its ultimate destination, or vice-versa you go to another motor carrier's terminal to hook-up to their trailer and pull to its destination

Special rules apply in such cases, including an inspection of their trailer (as well as contents) before you "sign for possession"

Check with your supervisor for instructions before attempting to do this

Recap

Driver is responsible for cargo (by signing bill of lading)
- to deliver the amount he picked up
- in the good shape that he received it

Driver needs to carefully check and inspect each shipment during all pickup and delivery situations

4. DOCUMENTATION AND PLACARDING OF HAZARDOUS MATERIALS AND WASTE (45 minutes)

Visual 13 Classes and Examples of Hazardous Materials

Basic Responsibilities

Shipper's Responsibilities

Safely package hazardous materials according to the U.S. Department of Transportation (U.S. DOT) Regulations
Properly fill out bill of lading and other shipping papers according to Federal requirements
Provide hazardous materials warning labels for each container and placards for vehicle carrying hazardous materials

Driver's Responsibilities

Call students attention to the hazardous materials and wastes definition in the glossary section of their manuals
Review the contents with them at this point

Check bill of lading and other shipping papers to see if hazardous material is included
Check cargo to see if it matches bill of lading and is actually hazardous material
Make sure shipper did his job, e.g., packaged and labelled material properly
Affix or assure that proper hazardous materials warning placards on vehicle
Review all shipping papers for instructions related to the safe transportation and delivery of hazardous materials cargo

Visual 14 Example of Bill of Lading with Hazardous Material Listed

Information Required on Bill of Lading with Hazardous Material

Shipper must enter following basic information on bill of lading
  Proper shipping name according to "Dangerous Articles Tariff" full name, no abbreviations
  Proper classification of shipment such as flammable liquids, flammable solids, poison Class D
  Quantity by weight volume or appropriate number must be shown

Packaging Information
  Shipper must certify that materials are properly packed driver should question if actual packaging does not fit information bill of lading

Radioactive Materials
  Additional information required for radioactive material
  Drivers must not pick up radioactive materials without first contacting dispatcher for further instructions

Visual 15 Labeling and Placarding Responsibilities

Labeling and Placarding Hazardous Material

Labeling Hazardous Material Packages

All hazardous materials packages must be labeled according to Federal regulations
Labels specified by hazard class and specific Federal requirements
Shipper responsible for labeling and for entering information about labeling on bill of ladings

Visual 16 A & B U.S. DOT Hazardous Warning Labels -- Chart 8 Revised January 1985 (front side)

Determining Proper Labels

Cite examples of various hazardous materials (use Visual Number 13 for examples) and use the visual to show the label required in each example cited
Review hazardous materials class numbers (in lower right corner of chart) and point out that these numbers are also shown on the labels

Visual 17 A & B Same U.S DOT Chart as Visual 16, but reverse side entitled "Warning Placards"

Hazardous Materials Warning Placards for Motor Vehicles

Purpose

For immediate identification by emergency fire and medical personnel in case of accident, spillage or other emergency

To remind drivers of special responsibilities when transporting hazardous materials

To alert other road users of dangerous cargo, e.g., if driver approaches accident involving leaking of hazardous material should avoid because of dangers of explosion or exposure to fumes

Determining Proper Placard

Placard requirements specified by U.S.D.O.T. regulations

Shipper will provide placards

Information on Bill of Lading can also aid in telling which placards are required

EXAMPLE: Bill of Lading information: 2 drums, paint enamel, 1,015 pounds
Hazard class and label required: Flammable
Placard required: Flammable

Placard Requirements

Requirements for hazardous materials warning placards included in United States Department of Transportation regulations (Title 49, Transportation, Part 172) (Show placard visual here)

Generally required by hazard class and quantity of hazardous material

NOTE: Many exceptions and qualifications to general rule which are not covered here but included in Title 49, Part 172)

Tables 1 and 2 show requirements for hazardous materials placards
- Eighteen basic hazardous materials warning placards
- Use is summarized in Tables 1 and 2 as follows:

Table 1--Placards must be used when any quantity of following hazard classes are transported on motor vehicles

HAZARD CLASS	PLACARD
Class A explosives	EXPLOSIVES A
Class B explosives	EXPLOSIVES B
Poison A	POISON GAS
Flammable solid (DANGEROUS WHEN WET label only)	FLAMMABLE SOLID W.
Radioactive material (yellow 111 label)	RADIOACTIVE
Radioactive materials:	
Uranium hexaflouride, fissile (containing more than 0.7 pct. U235)	RADIOACTIVE & CORROSIVE
Uranium hexaflouride, low specific activity (containing 0.7 pct or less U235)	RADIOACTIVE & CORROSIVE

Table 2--Placards must be displayed when 1,000 lbs or more of following hazardous materials are transported by motor vehicles

HAZARD CLASS	PLACARD
Class C explosives	DANGEROUS
Blasting agents	BLASTING AGENTS
Nonflammable gas	NONFLAMMABLE GAS
Nonflammable gas (Chlorine)	CHLORINE
Nonflammable gas (Fluorine)	POISON
Nonflammable gas (Oxygen, pressurized liquid)	OXYGEN
Flammable gas	FLAMMABLE GAS
Combustible liquid	COMBUSTIBLE
Flammable liquid	FLAMMABLE
Flammable solid	FLAMMABLE SOLID
Oxidizer	OXIDIZER
Organic peroxide	ORGANIC PEROXIDE
Poison B	POISON
Corrosive material	CORROSIVE
Irritating material	DANGEROUS

General Rule for Placards

At times when carrying two or more classes of hazardous material are being transported the DANGEROUS placards may be required

- May be used instead of separate placards for hazard classes indicated
- If 5,000 lbs or more of one hazard class is loaded at one location, placard for that class must also be displayed
- Hazardous waste materials may or may not require placarding dependent upon the type of material. If contaminated gasoline it would, whereas if it were ORME material it would not.

Special Driving Regulations for Placarded Vehicles

The Federal Motor Carrier Safety Regulations--Part 397 entitled "Transportation of Hazardous Materials, Driving and Parking Rules" have many specific requirements concerning operation of placarded vehicles.

If your vehicle is placarded, you must know and obey the rules in Part 397 which we will review now (use FMCSR for this, have students follow along in their copies) review:

397.1 - Application of These Rules
397.2 - Compliance with the Regulations
397.3 - Compliance with State and Local Laws
397.5 - Attendance and Surveillance of Motor Vehicles at all times
397.7 - Parking
397.9 - Routes
397.11 - Fires
397.13 - Smoking
397.15 - Fueling
397.17 - Tires
397.19 - Instructions and Documents

Visual 18 Identification Numbers Displayed with Hazardous Materials Warning Placards

Display of Identification Numbers with Placard

Definition and Purpose of NA and UN Numbers

Specific hazardous materials within each hazard class can be identified with use of a four digit United Nations number i.e., UN number or North American (NA) number, i.e.,--Review this material at bottom of Visual Number 17 with students

Emergency fire and medical personnel have lists of UN numbers for ease of identification of specific hazardous material

Once hazardous material identified, can refer to other information which indicates specific dangers and methods of dealing with the hazardous material in an emergency situation

Display of Numbers Required

UN numbers must be displayed along with basic hazardous materials warning placard only on:
- Railroad tank cars
- Truck or truck trailer tanks
- Portable tanks, i.e., tanks transported upon a vehicle as "cargo" (such as a tank mounted on a skid)

Visual 19 Placarded Vehicle

Rules for Displaying Placards and UN Numbers

Drivers responsibility
- Hazardous material warning placards must be clearly visible to other drivers and emergency personnel
- All four sides of unit must be placarded
- Front placard may be on power unit or cargo body
- Each vehicle in combination placarded for hazardous material it contains, e.g., twins carrying different kinds of hazardous materials require different placards
- UN numbers, if on separate orange panel, must be affixed near hazardous materials warning placard
- Placards must be removed when hazardous material is removed from vehicle (except for empty tank trailers that have not yet been cleaned and washed)
  - Frequently vehicles which usually carry hazardous materials have permanent fixtures for inserting and removing placards.

Other Shipping Documentation and Information

Driver and dispatcher must review all shipping papers related to hazardous materials for instructions related to safe transportation and delivery

Freight Bill

- Description of articles and other information copied from bill of lading
- Will be stamped HAZARDOUS MATERIALS in bold stamps

Manifest

- Will be stamped HAZARDOUS MATERIALS
- Will show location of hazardous materials

Visual 20 Hazardous Materials Envelopes

Hazardous Materials Envelopes

Manifests and waybills for dangerous articles placed in special envelope
Must be kept in cab at all times, even when driver leaves
Placed on top of all shipping papers for truck
  Usually with red border
  Contains checklist of instructions for the driver
If hazard envelopes not used, then all shipping papers (for Hazardous Materials) must either be replaced on top of all other papers or else tabbed to draw driver's attention

Visual 21 Hazardous Materials Recap

Recap

Any driver involved with hazardous materials or waste transportaion must receive additional training

Basic steps all drivers should know
- Shipping documents should include required information
- Driver should check material for proper labeling and packing (if possible)
- Placarding based on information on shipping papers
- Driver/dispatcher should follow special instructions for specific kinds of hazardous materials
- Make sure rig has proper placards at all times and as soon as hazardous material is unloaded remove the placards
- Shipper will furnish four placards and driver will affix them to vehicle

5. REVIEW (25 minutes)

Use the following discussion questions to review this lesson

Review Questions

1. Why is it important to accurately check the actual cargo (both the right amount and right number of pieces) with the pieces listed on the bill of lading?

2. You are picking up 2,199 electric toasters, each layer has toasters 10 across the pallet and 12 the other way. How many toasters to a layer? There are 5 layers of toasters on each pallet, how many toasters does each pallet have? Answer: 600.

3. How many "full pallets" of toasters should you get? How many toasters will you be short (if any)? Answer: 3 full pallets and a fourth pallet with 399 toasters on it.

4. Define the shipper? carrier? consignee?

5. Why is it important to supervise or observe the loading and unloading of each shipment?

6. Why is it important to get a full signature and date on the Delivery Receipt copy of the freight bill?

7. How would you handle the delivery of a shipment with an "Order Notify Bill of Lading"?

8. What is the difference in delivering Prepaid and COD shipments?

9. What basic information do you need to determine placarding required for hazardous material? Where do you find that information?

INSTRUCTOR NOTE: Be alert for students who:

- appear to be having reading problems
- experience difficulty in performing basic mathematical calculations necessary for accurate cargo counts

Any students identified as having such problems should be referred (quietly and privately) to your supervisor for counseling and/or remedial training.

You will not be doing any such students a "favor" by ignoring their problems as both reading and math skills are mandatory to their success on the job and ultimately will reflect badly on both you and your school.

Visual 1

Types of Motor Carriers

- Private Carrier
  - Transports Own Goods or Products
- For-Hire Carriers
  - Licensed by ICC to Serve Public
  - Carries Freight for Others
  - Requires Legal Documentation

Types of For-Hire Carriers

Common Carrier	"Operating Rights" Specify What Commodities Can Be Carried and in What Areas
Contract Carrier	"Operating Rights" Specify Shipper or Shippers With Whom Carrier Is Contracted
Exempt Commodity Carrier	Carries Nonregulated (Exempt) Cargo, Such as Agricultural Products, Seafood

Visual 2

Key Freight Terms

- Freight)
- Lading)
- Cargo)
- Product) ---------- All Refer to Freight
- Commodity)
- Consignment)

Parties Involved

- Shipper or Consignor
  - Ships the Goods
- Carrier
  - Transports the Goods
  - Originating Carrier–Picks up Shipment From Shipper
  - Connecting Carrier–Delivers Shipment to Interchange Point
  - Delivery Carrier–Delivers Shipment to Consignee
- Consignee
  - Person or Company Who Receives the Goods
- Freight Broker
  - Arranges for Shipments
- Freight Forwarder
  - Combines Small Shipments Into One Load and Ships to Break Bulk Stations

Key Shipping Documents

- Bill of Lading
  Contract Between Shipper and Carrier
- Straight Bill of Lading
  Goods Delivered to Consignee Indicated
- Order Notify Bill of Lading
  Requires Copy of Bill of Lading as Payment for Shipment
- Through Bill of Lading
  Covers Shipment by More Than One Company at Fixed Rate
- Freight Bill
  Document Originated by Carrier Which Lists Freight and Charges
- Manifest
  List of Freight Bills for Entire Shipment
- Packing Slip
  Detailed List of Packing Goods Prepared by the Shipper
- Delivery Receipt
  Receipt Signed by Customer Indicating Acceptance of Goods
- Warehouse Receipt
  Receipt for Goods Placed in a Warehouse

Terms Related to Charges and Services

Types of Payment

- Prepaid
  - Charges Paid at Shipping Point
- C.O.D.
  - Charges Collected at Receiving Point
- Order Notify Payment
  - Charges Collected With Copy of Bill of Lading

Rates

- Based on Cargo Value, Weight, Distance and Services Provided
- Types of Rates
  - Minimum and Maximum Rates
  - LTL and Exclusive Use of Truck
  - Mixed Truck Load Rates
  - Expedited Service
- Surcharges
  - Inside Delivery vs. Tailgate Delivery
  - Residential Delivery
  - Helper Service
  - Return Dunnage
- Charges for Delay and Storage
  - Demurrage

Visual 5

(To be Printed on White Paper)

UNIFORM STRAIGHT BILL OF LADING

ORIGINAL—NOT NEGOTIABLE—Domestic

Shipper's No.
Agent's No.
Carrier. (SCAC)

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From , Date , 19
At Street, City, County, State

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as shown below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own railroad, water line, highway route or routes, or within the territory of its highway operations, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to
Destination Street,
City, County, State Zip
Routing
Delivering Carrier Vehicle or Car Initial No.

**
Collect On Delivery $ and remit to:
Street City State

C. O. D. charge to be paid by } Shipper ☐ Consignee ☐

No. Packages	Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

If charges are to be prepaid write or stamp here "To be Prepaid."

Received $
to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per
(The signature here acknowledges only the amount prepaid)

Charges advanced:
$

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

Note—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding per

Shipper Agent.
Per Per
Permanent address of Shipper: Street, City, State
**Recommended C. O. D. Section to be Printed in Red.

Definitions:
Other Types of Bills of Lading

Order Notify Bill of Lading

- Basic Content as Same as Uniform Straight Bill of Lading
  - Differences:
    1. A Negotiable Document
    2. Holder Must Surrender Yellow (Original) Copy to Get Freight

Government Bill of Lading

- Special Form Issued by Government
  - Differences:
    1. No Money Collected at Time of Delivery
    2. Consignee Surrenders Original Copy of Government Bill of Lading
    3. Original Copy Used by Carrier to Collect Charges

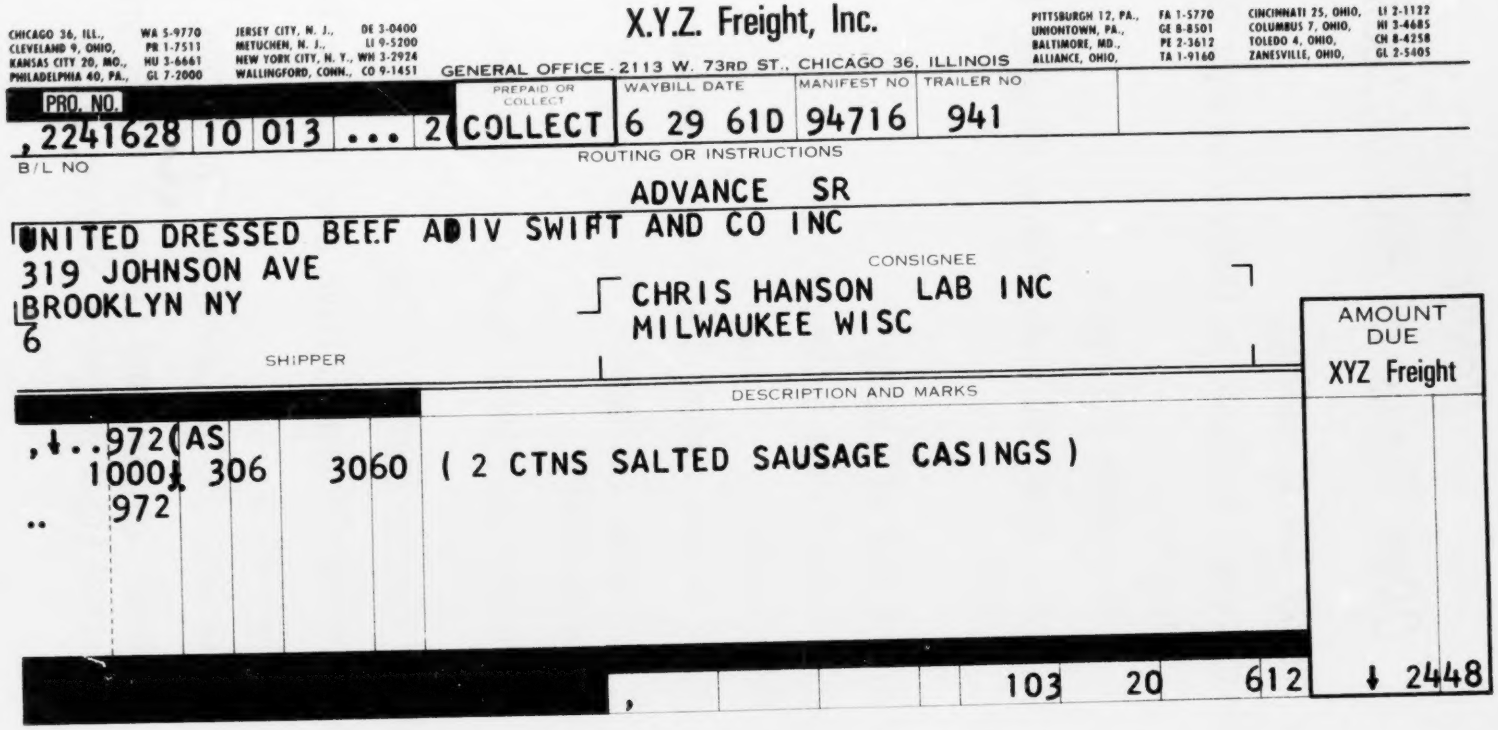
Household Goods Bill of Lading

- Most Moving Companies Have Own Form of Bill of Lading
  - Differences:
    1. Combines Bill of Lading and Freight Bill
    2. Meets Company and Customer Needs, and Need to Record Legal Weight of Shipped Goods

Visual 7

Sample Freight Bill

OPERATOR'S GUIDE COPY



X.Y.Z. Freight, Inc.

GENERAL OFFICE - 2113 W. 73RD ST., CHICAGO 36, ILLINOIS

CHICAGO 36, ILL.,	WA 5-9770	JERSEY CITY, N. J.,	DE 3-0400
CLEVELAND 9, OHIO,	PR 1-7511	METUCHEN, N. J.,	LI 9-5200
KANSAS CITY 20, MO.,	HU 3-6661	NEW YORK CITY, N. Y.,	WH 3-2924
PHILADELPHIA 40, PA.,	GL 7-2000	WALLINGFORD, CONN.,	CO 9-1451
PITTSBURGH 12, PA.,	FA 1-5770	CINCINNATI 25, OHIO,	LI 2-1122
UNIONTOWN, PA.,	GE 8-8501	COLUMBUS 7, OHIO,	HI 3-4685
BALTIMORE, MD.,	PE 2-3612	TOLEDO 4, OHIO,	CH 8-4258
ALLIANCE, OHIO,	TA 1-9160	ZANESVILLE, OHIO,	GL 2-5405

PRO. NO.					PREPAID OR COLLECT	WAYBILL DATE	MANIFEST NO	TRAILER NO
,2241628	10	013	...	2(	COLLECT	6 29 61D	94716	941

B/L NO

ROUTING OR INSTRUCTIONS

ADVANCE SR

SHIPPER

UNITED DRESSED BEEF ADIV SWIFT AND CO INC
319 JOHNSON AVE
BROOKLYN NY
6

CONSIGNEE

CHRIS HANSON LAB INC
MILWAUKEE WISC

DESCRIPTION AND MARKS

,↓..972(AS
1000↓ 306 3060 (2 CTNS SALTED SAUSAGE CASINGS)
972
..

, 103 20 612

AMOUNT DUE
XYZ Freight

↓ 2448

Visual 8

Sample Cargo Manifest (Front)

X.Y.Z. Freight, Inc.
Any Street, Any Town, Any State

TOTAL DELAY TIME (MIN.)		MILES (NO. 10TH'S)	
FROM DELIVERIES, PICKUPS		END	
		START	
BREAKDOWNS		TOTAL	

TRUCK/TRACTOR #__________ TRAILER #__________

	DELIVERIES				PICK-UPS				HRS. WORKED (HR & MIN.)		RETURN DELIVERIES	
RTE NO.	WEIGHT	STOPS	SHIPTS	PIECES	WEIGHT	STOPS	SHIPTS	PIECES	REGULAR	O/T	WEIGHT	STOPS

START			BREAK	BREAK	LUNCH	FINISH		
			FROM	FROM	FROM			
PUNCH IN	DEPART YARD	ARR. FIRST STOP	TO	TO	TO	DEP. LAST STOP	ARR. YARD	PUNCH OUT
			LOCATION	LOCATION	LOCATION			

RECAP OF DELIVERIES

LINE NO.	PRO. NO.	CONSIGNEE	TOWN	NO. PCS.	WEIGHT	TIME RECORD			DELAY & REASON
						ARR.STOP	ST.UNLOAD	DEP.STOP	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

Visual 9

Sample Cargo Manifest (Reverse)

PICK UP RECORD

LINE NO.	SHIPPER	TOWN	TIME RECORD			DELAYS
			ARR STOP	START LOAD	DEP. STOP	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

SPECIAL INSTRUCTIONS

- ☐ USE RADIO
- ☐ USE BRIDGE, NO TUNNEL
- ☐ CHECK FOR HAZARDOUS MATERIALS
- ☐ DISPLAY HAZARDOUS MATERIALS PLACARDS
- ☐ OTHER (SEE BELOW)

BREAKDOWN START	
BREAKDOWN FINISH	
TOTAL BREAKDOWN TIME	

I CERTIFY THAT THIS IS AN ACCURATE RECORD OF MY ACTIVITY FOR TODAY.

(PLEASE PRINT)

NAME

SIGNATURE

DATE

Steps in Pickup of Freight

- Count and Inspect Freight
- Make Sure Freight Is Properly Marked to Aid in Checking Against Bill of Lading
  - Pay Attention to Special Handling Requirements
- Refuse or Notate Freight That Is Short, Damaged, or Poorly Packed,
  - Don't Accept at Shipper's Risk
- Make Sure Freight Is Properly Loaded
- Make Sure Bill of Lading Is Properly Filled Out
  - Fill in Pickup Date and Other Information
  - Get Full Signature From Shipper's Agent (No Initials)
  - Sign in Proper Place,
    - Full Name and Date
    - Company's Name
    - Circle Number of Pieces to Be Picked up

Sealed Truck and Bill of Lading Noted "Shippers Weight and Count"

- If Shipment Loaded and Sealed It Is Checked by Shipper

- Shipper Accepts Responsibility for Weight, Count, and Loading

- Bill of Lading Must Bear Notation:
  "Shippers Weight and Count"

- Serial Numbers of Seals Must Appear on All Three Copies of the Bill of Lading

- Driver Is Still Responsible for Condition of Cargo Enroute and at Delivery

Steps in Delivering Freight

Key Points

- Make Sure You Deliver to the Right Person
- Handle Payment for Merchandise and Shipping Properly
- Get Proper Signatures on Freight Bill and Bill of Lading
- Follow Company Policy for Problems and Special Pickup or Delivery Situations

Steps in Delivery

- Check and Unload Freight
- Use an Orderly System to Avoid Mixing up Freight
- Check Each Piece Against Shipping Papers Before It Is Unloaded
- Check Again as Each Piece Is Unloaded
- Have Shipping Agent Check Freight With You Against Shipping Papers After It Is Unloaded

Shipping Payments

- If Bill of Lading Says COLLECT, Obtain Cash or Certified Check
- If PREPAID, No Further Action

Merchandise Payments

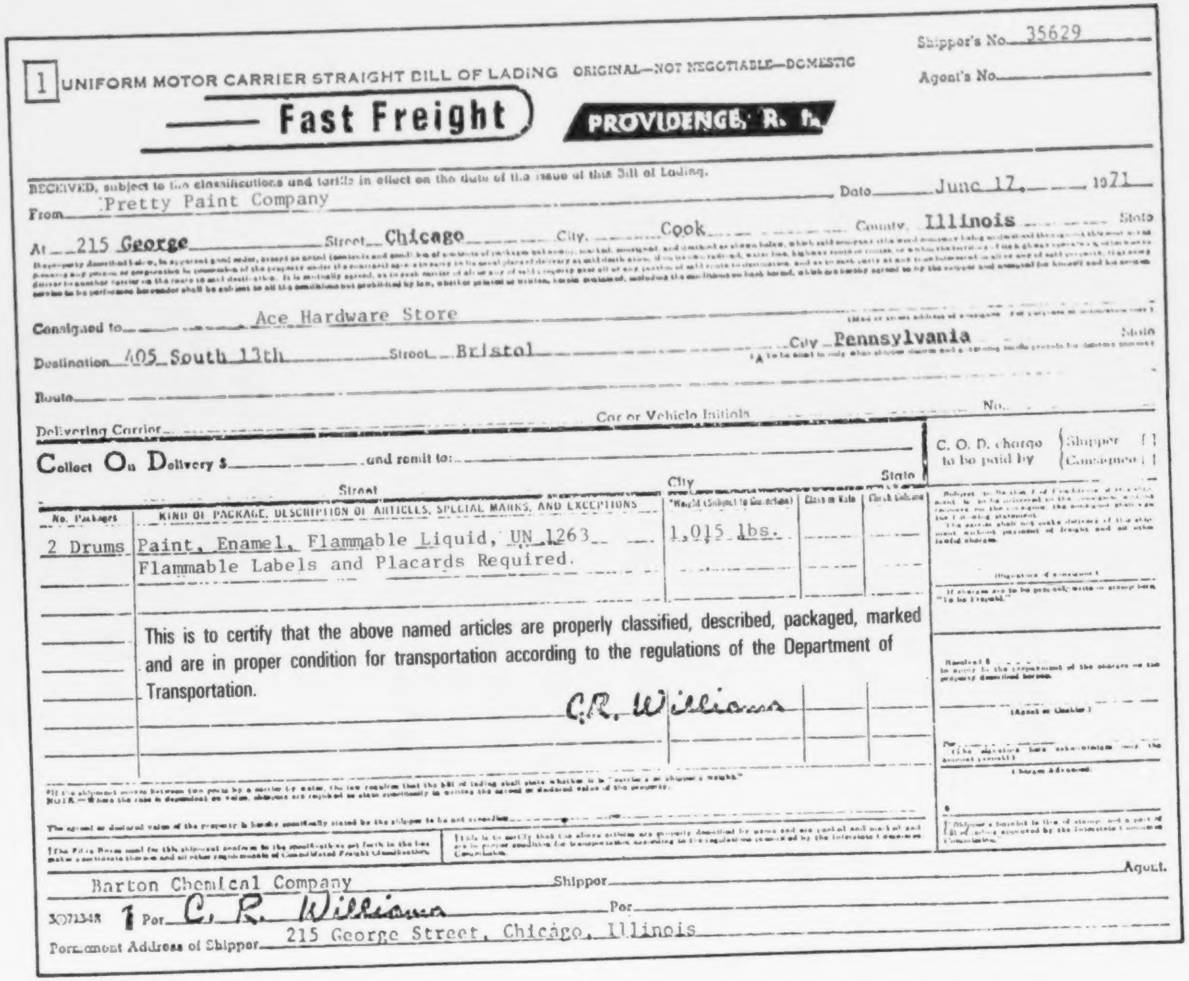
- Check Bill of Lading for Method of Payment
- If C.O.D., Obtain Cash or Certified Check
- If Order Notify Bill of Lading, Don't Surrender Freight Until You Get Yellow Copy of Order Notify Bill of Lading

Visual 13

Classes and Examples of Hazardous Materials

Class	Examples
Class A Explosives	Black Powder, High Explosives
Class B Explosives	Special Fireworks, Rocket Motor Ignitors
Class C Explosives	Small Arms Ammunition, Cigarette Loads
Flammable Liquid	Crude Oil, Gasoline
Compressed Gas	Hydrogen, Propane
Nonflammable Gas	Helium, Oxygen
Corrosive Material	Sulfuric Acid
Irritating Material	Tear Gas
Combustible Material	Crude Oil, Fuel Oil
Flammable Solids	Charcoal Briquettes
Oxidizer	Mixed Fertilizer, Ammonium Nitrate
Poison A	Cyanogen Gas
Poison B	Arsenic, Some Insecticides
Radioactive Materials	Cobalt 60

Example: Bill of Lading for Flammable Cargo



1 UNIFORM MOTOR CARRIER STRAIGHT BILL OF LADING ORIGINAL—NOT NEGOTIABLE—DOMESTIC

Shipper's No. 35629

Agent's No.

Fast Freight

PROVIDENCE, R. I.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From Pretty Paint Company Date June 17, 1971

At 215 George Street Chicago City Cook County Illinois State

Consigned to Ace Hardware Store

Destination 405 South 13th Street Bristol City Pennsylvania State

Route

Delivering Carrier Car or Vehicle Initials No.

Collect On Delivery $ and remit to:

Street City State

C. O. D. charge to be paid by Shipper ☐ Consignee ☐

No. Packages	Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column
2 Drums	Paint, Enamel, Flammable Liquid, UN 1263 Flammable Labels and Placards Required.	1,015 lbs.		

This is to certify that the above named articles are properly classified, described, packaged, marked and are in proper condition for transportation according to the regulations of the Department of Transportation.

C.R. Williams

Barton Chemical Company Shipper

Per C. R. Williams

Agent.

Per

Permanent Address of Shipper 215 George Street, Chicago, Illinois

Labeling and Placarding Responsibilities

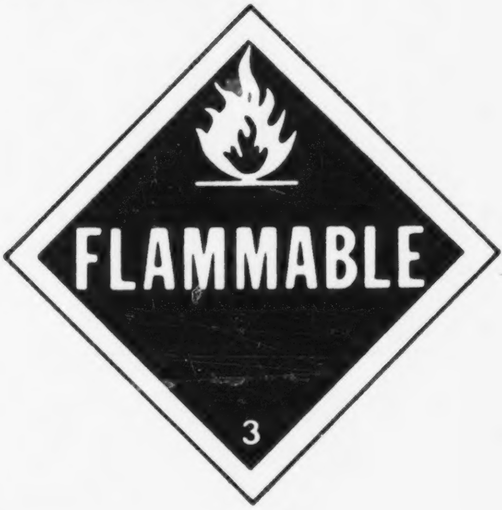
- Hazardous Materials Must Be Labeled and Placarded According to Hazardous Materials Class.
- Shipper Is Responsible for Labeling Freight.
- Driver Is Responsible for Placarding Vehicle.
- Information on Required Labels and Placards on Bill of Lading,

Example:

Freight: 2 Drums, Paint Fluids, NOI, 1015 lbs.

Hazard Class and Label Required:
Flammable Liquids

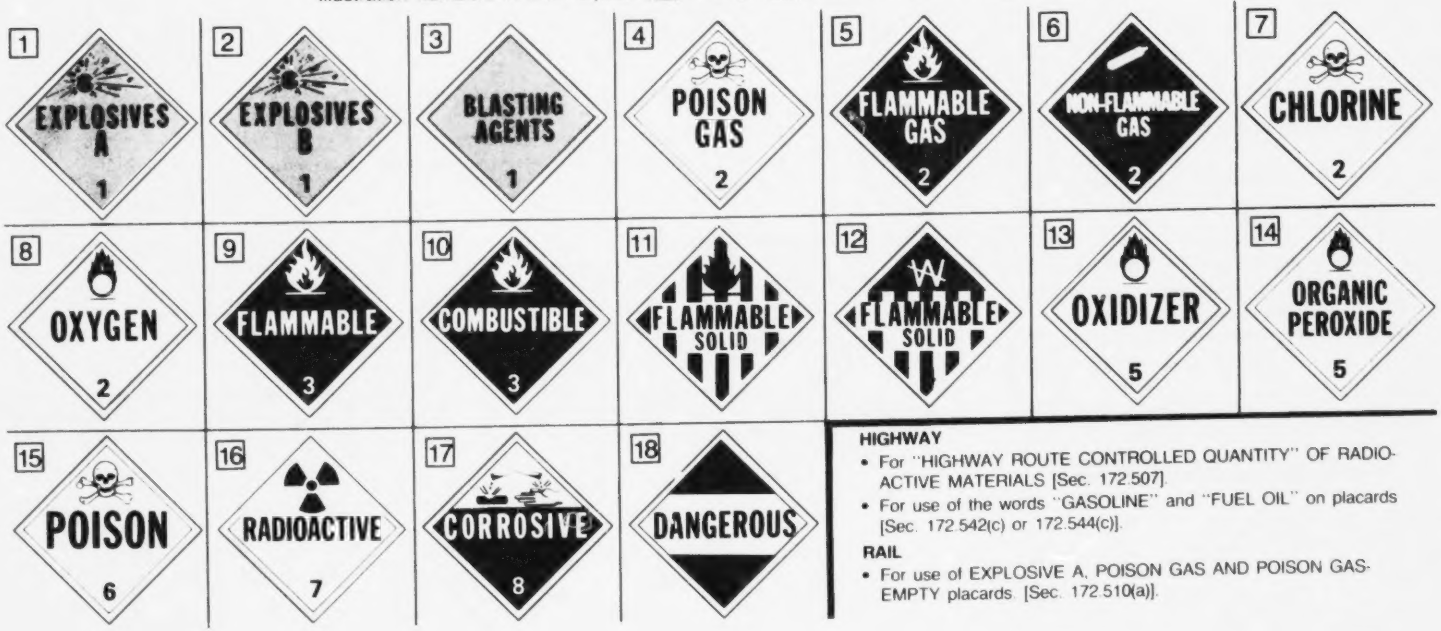
Placard Required: Flammable



DOT Hazardous Materials Warning Labels

DOMESTIC PLACARDING

Illustration numbers in each square (1 through 18) refer to TABLES 1 and 2 below.


1
EXPLOSIVES A 1
2
EXPLOSIVES B 1
3
BLASTING AGENTS 1
4
POISON GAS 2
5
FLAMMABLE GAS 2
6
NON-FLAMMABLE GAS 2
7
CHLORINE 2
8
OXYGEN 2
9
FLAMMABLE 3
10
COMBUSTIBLE 3
11
FLAMMABLE SOLID
12
FLAMMABLE SOLID
13
OXIDIZER 5
14
ORGANIC PEROXIDE 5
15
POISON 6
16
RADIOACTIVE 7
17
CORROSIVE 8
18
DANGEROUS

HIGHWAY

- For "HIGHWAY ROUTE CONTROLLED QUANTITY" OF RADIOACTIVE MATERIALS [Sec. 172.507].
- For use of the words "GASOLINE" and "FUEL OIL" on placards [Sec. 172.542(c) or 172.544(c)].

RAIL

- For use of EXPLOSIVE A, POISON GAS AND POISON GAS-EMPTY placards. [Sec. 172.510(a)].

General Guidelines on Use of Labels

- Labels illustrated above are normally for *domestic shipments*. However, some air carriers *may* require the use of International Civil Aviation Organization (ICAO) labels

- Domestic Warning Labels *may* display UN Class Number, Division Number (and Compatibility Group for Explosives only.) Sec. 172.407(g).

- Any person who offers a hazardous material for transportation MUST label the package, if required. [Sec. 172.400(a)]

- Label(s), when required, must be printed on or affixed to the surface of the package near the proper shipping name. [Sec. 172.406(a)].

- When two or more different labels are required, display them next to each other. [Sec. 172.406(c)].

- Labels may be affixed to packages (even when not required by regulations) provided each label represents a hazard of the material in the package. [Sec. 172-401].

- The Hazardous Materials Tables, Sec. 172.101 and 172.102, identify the proper label(s) for the hazardous materials listed

UN Class Numbers

Hazardous materials class numbers associated with the hazard classes.

Class 1—Explosives
Class 2—Gases (Compressed, Liquefied or dissolved under pressure)
Class 3—Flammable liquids
Class 4—Flammable solids or Substances
Class 5—Oxidizing Substances
Class 6—Poisonous and infectious Substances
Class 7—Radioactive Substances
Class 8—Corrosives
Class 9—Miscellaneous dangerous Substances

U.S. Department of Transportation

Research and Special Programs Administration

Materials Transportation Bureau
Washington, D.C. 20590

Notes:

Notes:

DOT Hazardous Materials Warning Placards

DOMESTIC LABELING

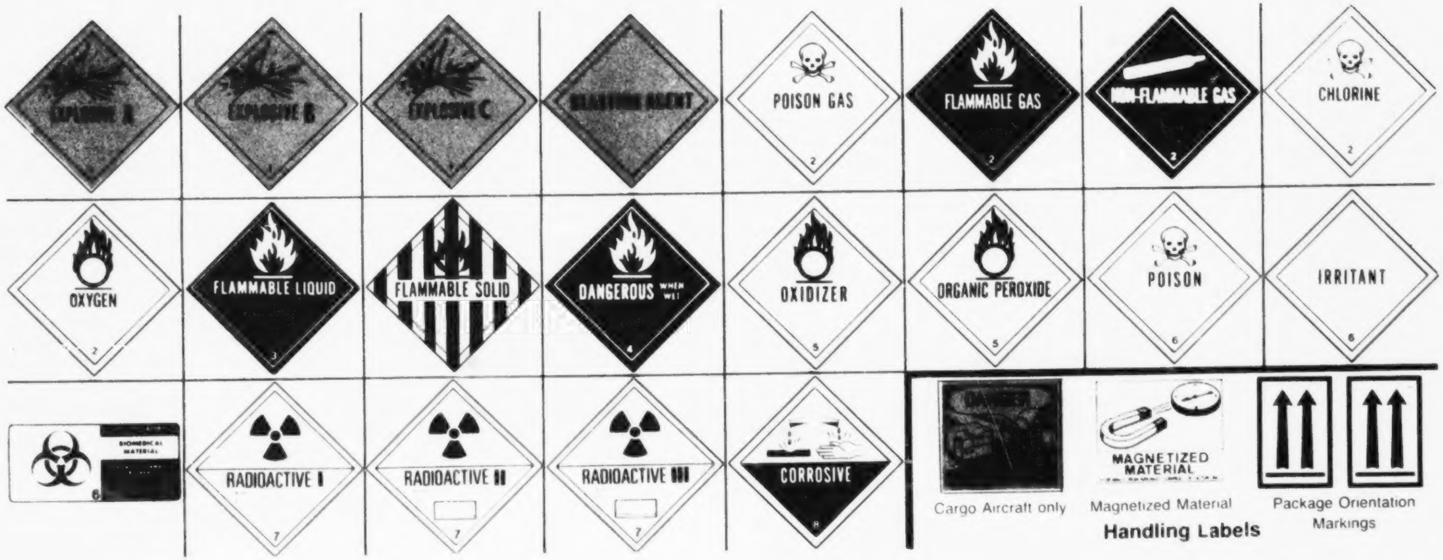

EXPLOSIVE A
EXPLOSIVE B
EXPLOSIVE C
BLASTING AGENT
POISON GAS
FLAMMABLE GAS
NON-FLAMMABLE GAS
CHLORINE
OXYGEN
FLAMMABLE LIQUID
FLAMMABLE SOLID
DANGEROUS WHEN WET
OXIDIZER
ORGANIC PEROXIDE
POISON
IRRITANT
BIOMEDICAL MATERIAL
RADIOACTIVE I
RADIOACTIVE II
RADIOACTIVE III
CORROSIVE
MAGNETIZED MATERIAL
Cargo Aircraft only
Magnetized Material
Handling Labels
Package Orientation Markings

TABLE 1

HAZARD CLASSES	*NO.
Class A explosives	1
Class B explosives	2
Poison A	4
Flammable solid (DANGEROUS WHEN WET label only)	12
Radioactive material (YELLOW III label)	16
Radioactive material:	
Uranium hexafluoride fissile (containing more than 1.0% U^{235})	16 & 17
Uranium hexafluoride, low-specific activity (containing 1.0% or less U^{235}	16 & 17

NOTE: For details on the use of Tables 1 and 2, see Sec. 172.504 (See footnotes at bottom of tables.)

Guidelines

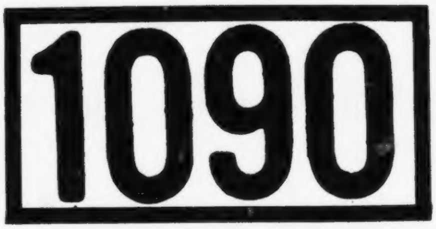
- Placard motor vehicles, freight containers, and rail cars containing *any quantity* of hazardous materials listed in TABLE 1.
- Placard *motor vehicles* and *freight containers* containing 1,000 pounds or more gross weight of hazardous materials classes listed in TABLE 2.
- Placard *freight containers* 640 cubic feet or more containing *any quantity* of hazardous material classes listed in TABLES 1 and/or 2 when offered for transportation by *air or water*. Under 640 cubic feet, see Sec. 172.512(b).
- Placard *rail cars* containing *any quantity* of hazardous materials classes listed in TABLE 2 except when less than 1,000 pounds gross weight of hazardous materials are transported in *Trailers* or *Containers* on Flat Car Service.

TABLE 2

HAZARD CLASSES	*NO.
Class C explosives	18
Blasting agent	3
Nonflammable gas	6
Nonflammable gas (Chlorine)	7
Nonflammable gas (Fluorine)	15
Nonflammable gas (Oxygen, cryogenic liquid)	8
Flammable gas	5
Combustible liquid	10
Flammable liquid	9
Flammable solid	11
Oxidizer	13
Organic peroxide	14
Poison B	15
Corrosive material	17
Irritating material	18

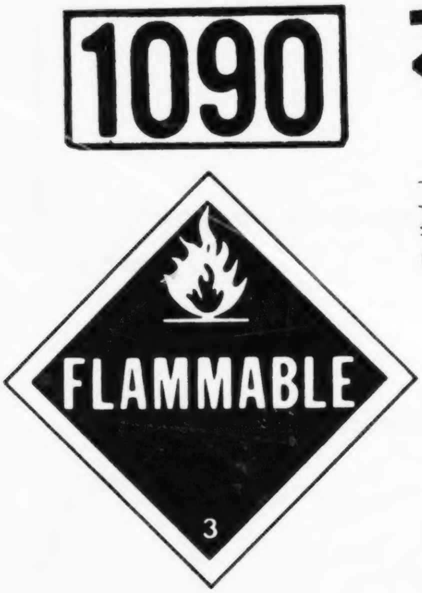
Visual 18

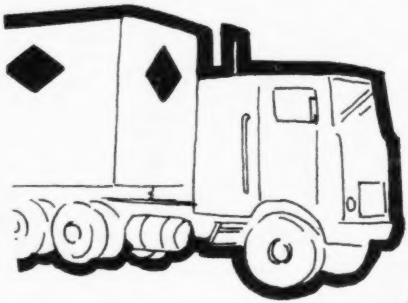
Identification Numbers Displayed With Hazardous Materials Warning Placards

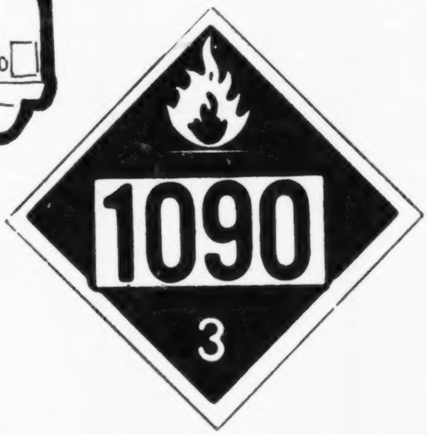


Numbers May Be Displayed Like:

This *or Like* *This*


1090
FLAMMABLE
3

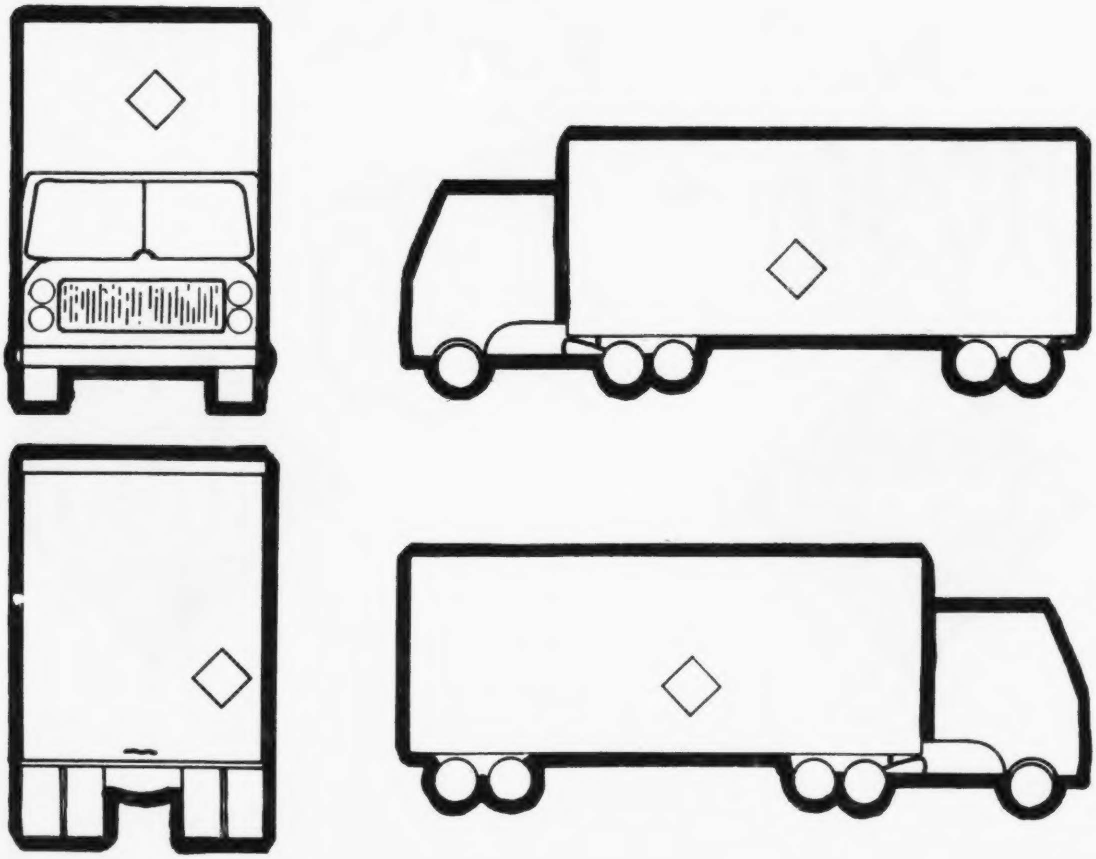




Visual 19

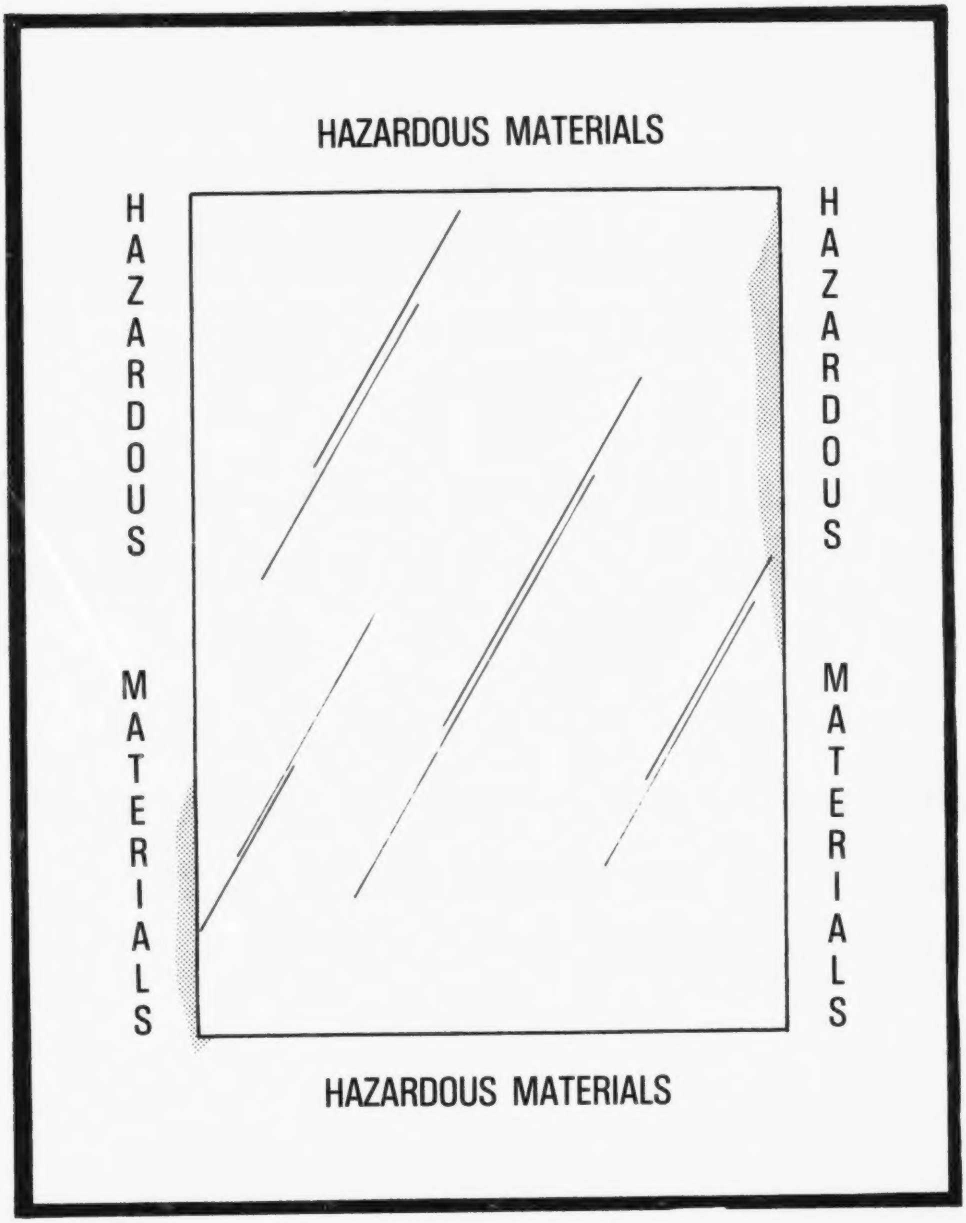
Placement of Placards

- Must Be Clearly Visible
- Must Be Placed on All Four Sides of the Vehicle
- UN Numbers Must Be Displayed
- Placards Must Be Removed When Hazardous Material Is Removed



Visual 20

Sample – Hazardous Materials Bill of Lading Envelope


HAZARDOUS MATERIALS
HAZARDOUS MATERIALS
HAZARDOUS MATERIALS
HAZARDOUS MATERIALS

Visual 21

Hazardous Materials Recap

1. Always Check Your Freight Bills.

2. If You Are Carrying Hazardous Materials–The Bills Must Say So. Bills Must Also Show the Shippers Certification Regarding Classification, Packaging and Labeling.

3. If You Are Transporting Hazardous Materials Your Vehicle Probably Will Require Placards.

4. If Your Vehicle Is Placarded You Must Comply With the Special Requirements of Part 397 of the Federal Motor Carrier Safety Regulations.

LESSON 2 CARGO DOCUMENTATION PROBLEMS (CLASSROOM)

Overview

Time Allotted: 2 hours

Prerequisites: Unit 5.2, Lesson 1.

Purpose:

The purpose of this lesson is to give students a quick review of the cargo documentation procedures during pickup and delivery and to reinforce the information learned in Lesson 1 by presenting students with a situation in which they are asked to prepare the Bill of Lading. The idea of cargo documentation problems is then introduced via a discussion in which students are asked to state how they can keep Over, Short and Damaged O.S.& D. situations to a minimum. Basic O.S.& D. procedures are then reviewed. Several O.S.& D. problem solving situations end the lesson.

Materials

Instructional Aids

Visual 1 - 6

Student Material

Pickup and Delivery of Freight Checklist, in Unit 5.2 of Student Manual

Problem Solving Exercise - Preparing a Bill of Lading, in Unit 5.2 of Student Manual

Handling "Over," "Short," and "Damaged," Freight Checklist, in Unit 5.2 of Student Manual

Instructor Material

National Freight Claim Council of American Trucking Associations, Inc., booklet entitled "Motor Carrier Employees Handbook for the Prevention of Freight Loss and Damage" as background source of information. There are other suppliers of such data. Consult "List of Training Aids" in this manual.

Grease pencil for marking answers on the visual aids

Content

Activity or Topic	Approximate Time
1. REVIEW OF CARGO DOCUMENTATION PROCEDURES	25 minutes
2. CONSEQUENCES OF FAULTY CARGO HANDLING PROCEDURES	35 minutes
3. PROCEDURES FOR OVER, SHORT, AND DAMAGED CARGO	30 minutes
4. PROBLEM SOLVING SITUATIONS	30 minutes
	TOTAL 2 hours

1. REVIEW OF CARGO DOCUMENTATION PROCEDURES (25 minutes)

Four Situations Involving Cargo Documentation

Picking up Cargo from Shipper

- Count and inspect freight
- Make sure number of items matches bill of lading
- Note on Bill of Lading missing/damaged items
- Make sure Bill of Lading properly signed
  - Don't sign until satisfied with amount/condition of freight
  - Fill in pickup date
  - Circle the number of pieces of cargo picked up

Pickup of Freight From Connecting Carrier

- Use same care as when picking up from shipper, e.g., inspect freight
- Don't sign freight bill unless carrier notes missing/damaged freight

Final Delivery

- Count and inspect cargo as it is unloaded
- Check against Bill of Lading
- Delivery depends on type of payment
  - Get cash/certified check for COLLECT or C.O.D.
  - No further action for prepaid
  - Get signed yellow copy of order notify Bill of Lading
- Note and initial any loss or damage on shipping papers

Delivery to Connecting Carrier

- Make sure they sign freight bill
- Note and initial any loss or damage

When driver has to fill out or assist in completing Bill of Lading

Situations that occur that require driver to fill out Bill of Lading

EXAMPLE: Goods delivered to a company who wants driver to pick up additional freight. Company does not have Bill of Lading forms. Driver uses blank copies provided by employer and fills out or assists shipper in filling out form.

Problem-Solving Exercise: Preparing a Bill of Lading

Instructions

Instruct students to complete "Problem-Solving Exercise: Preparing a Bill of Lading" by following the instructions for the situation which is described in their Student Manual. A copy of the situation appears on the next page of this lesson. Students should be able to complete the exercise from knowledge gained so far in Unit 5.2 and references to their Student Manual. However, answer questions and assist as necessary.

Review completed exercise using the answer key shown in Visual 1.

(Reprinted from Unit 5.2 in the Student Manual)

PROBLEM-SOLVING EXERCISE: PREPARING A BILL OF LADING

Use Today's Date and Your Name for this Exercise

You are a pickup and delivery driver for the:

X.Y.Z. Trucking Company
123 East Avenue
Baltimore, Maryland 22115

Vehicle #: 2455

When you make a delivery to the National Office Services Company, the owner asks you to pickup several packages for shipment. The packages will be taken back to your main terminal in Baltimore and shipment will continue from there. You call your supervisor and he says it's okay. He reminds you to follow company policy and make sure that the correct Bill of Lading is filled out. Since National Office Services Company is a small company, they do not have any copies of the Bill of Lading. You have a packet of forms and the owner asks you to help fill out the Bill of Lading.

Use the information below to help you fill out the form up to the point that you and the shipper will sign.

Freight: Two cartons labelled "12 copies of Office Procedure Manuals"

You and the owner weigh the cartons. Each weighs 15 lbs.

Your company shipping rate is $6.80 CWT and the owner wants to ship the packages C.O.D.

The shipping label on the packages addresses each to:

Acme Office Supply Company
200 Main Avenue
Dover, Delaware 34567

When you have filled out the Bill of Lading with the above information, assume the role of the owner for a moment and sign his name, John L. Kent, in the proper place.

Review the document to make sure it is properly filled out and sign your name in the appropriate place.

Which copy will you give the owner? Which copies will you take back with you to Baltimore?

(End of reprint from Student Manual)

Visual 1 Uniform Order Bill of Lading Answers (Continued)

The owner (shipper) will get the original copy
The second and third copies go back to Baltimore

2. CONSEQUENCES OF FAULTY CARGO HANDLING PROCEDURES (35 minutes)

Visual 2 Reasons for Cargo Loss and Damage

Cargo Problems

Situations discussed in class illustrate smooth pickup and delivery with no problems
But millions of dollars a year lost when freight is damaged, stolen lost

Consequences
- Inconvenience and loss to customers, shippers
- Insurance claims and lawsuits to contend with
- Loss of business to carriers leading to job loss for drivers

Main Reasons for Cargo Loss

Pilferage or Theft

Millions of dollars a year in merchandise pilfered
Cartons or partial cartons stolen from trailer, loading docks
Stolen off trucks while driver's back is turned during a delivery

Grand Larceny

All or part of tractor, trailer, shipment stolen
- from freight terminals
- when parked enroute

Work of professional thieves

Hijacking

Millions of dollars of valuable cargo lost each year, e.g., meats, cigarettes, televisions, clothes
Drivers held up at gunpoint and cargo taken
More dramatic but less common than pilferage, grand larceny
Usually the work of professionals

Lost or Misrouted Cargo

Much cargo lost via carelessness
Wrong shipments delivered
Cargo lost or mixed up at pickup, delivery points

Main Reasons for Cargo Damage

NOTE: Most points covered earlier in Unit 5.1--review briefly

- Poor
  - Packing
  - Handling
  - Stacking
  - Securement

- Damaged enroute because of poor driving techniques and/or traffic accidents

Consequences of Loss and Damage Affect Driver

- Small shipping companies and carriers go out of business
  - Get bad reputation
  - Can't handle claims
- Drivers have pay docked if negligent
- In short, driver should be concerned with:
  - His company's welfare
  - His own welfare/reputation

Prevention of Cargo Loss and Damage

- Three major areas where prevention can occur
  - Security
  - Paper handling
  - Pickup and delivery
- Need concerted effort involving:
  - Management
  - Freight-handling personnel
  - Drivers

Security

- Know and comply with company's security requirements
- Trailers should be parked back to back when sitting loaded, makes it difficult for thieves to open doors
- Vehicles should be secured
  - Trailers should never be left unsecured when unattended, e.g., trailer doors closed and locked when not in line of vision
  - Trailers should be locked and sealed before leaving and keys removed
  - If kingpin locks provided, use them--prevents disengagement of fifth wheel

Proper Handling of Cargo Documents

- Shipping papers should be filled out properly and legibly to avoid:
  - Misrouting of cargo
  - Confusion in routing to preclude claims
- Papers should be secured because thieves:
  - Need shipping papers to identify valauble cargo
  - Can alter shipping papers for own purposes

Proper Pickup, Delivery Procedures

Cargo gets mixed up, lost if not loaded/unloaded properly
  Don't take anyone else's word for the count
Damage, pilferage can occur if cargo unattended during pickup/delivery
Cargo must be accounted for (e.g., matched against shipping papers) in all pickup and delivery situations
Cargo must be properly labeled to help prevent loss, mixup

Student Discussion: What the driver can do to minimize cargo loss and damage.

Instructions

Based on information presented so far in Units 5.1 and 5.2, students should be able to participate in a short classroom discussion in which they identify the driver's responsibility to preventing lost or damaged cargo.

Begin the short discussion by stating, "The responsibilty for preventing cargo loss and damage is the responsibility of every employee. But there are many things each driver should do."

Trigger the discussion with each of the three questions below.
The key responses that you should be getting from students are listed.
Prompt students if necessary.
List their responses on the blackboard under each category.
Add key responses that students do not volunteer.

Question #1

What can the driver do to minimize cargo loss claim and damage in relation to securing his vehicle and the cargo?

Key Responses

Always count all freight coming on and off vehicle
Don't leave keys in tractor
Make sure trailer is locked and sealed before leaving yard
Don't leave open trailer unattended during loading or unloading
Follow all company rules about vehicle and cargo security
Other key ideas related to making sure driver does not invite larceny or pilferage
Don't discuss cargo contents with strangers

Question #2

What can the driver do to cut cargo loss related to paper handling?

Key Reponses

Make sure all shipping documents are legible
Be careful in transcribing information
Don't leave shipping documents laying around, make sure they are secured when stopping for breaks on the road
Follow proper procedures, get full signatures when required, get all exceptions initialed
Other key ideas related to protecting shipping papers from theft or making sure instructions and signatures are clear and legible

Question #3

What can the driver do in pickup/delivery situations to cut down on cargo loss or damage?

Key Responses

Count and recount accurately, be sure count matches shipping paper
See that each load is segregated during pickup and delivery
Watch for poor packing and stacking that can lead to damage
Watch for poorly packed or empty boxes that can easily be pilfered
Make sure the load is properly stacked and secured
Don't leave cargo unattended, e.g., when the loading crew knocks off for lunch--lock the trailer
Other key ideas in which driver can cut down on loss or damage during pickup/delivery situations

3. PROCEDURES FOR OVER, SHORT, AND DAMAGED CARGO (30 minutes)

Visual 3 Cargo Situations to be Labeled O., S., or D.

Discrepancies That Occur on Delivery of Freight

Over--more freight than freight bill indicates
Short--fewer pieces than shipping papers show
Damage--freight damage has occured because of someone's poor handling

EXAMPLE: Ask students to determine category for each situation shown
The bill of lading and freight bill say 10 cartons of soap
The driver arrives with:
7 cartons intact, 2 smashed (S and D)
8 cartons intact (S)
9 cartons intact, 1 damaged (D)
10 cartons intact (okay)
11 cartons intact (O)

What Happens When O, S, and D Occurs

Many parts of company involved
O, S, and D department has primary responsibility
Claims department handles insurance claims against company
Tracing department traces missing shipments
Driver has key responsibility too
    Takes responsibility when cargo picked up
    Must face consignee when delivery is made, i.e., has to handle O, S, and D situations as they occur
    Must know procedures

General Procedures for Handling All Cargo Discrepancies

Always be polite to the customer
Follow company policy, if not sure, call your supervisor
Don't try to resolve situation yourself, always call your supervisor
Don't lose temper
Consignee faced with short/damaged shipment might vent his anger on driver, driver should remain cool despite provocation

Visual 4 Example and Steps in Handling "Over" Freight

Procedures for "Over" Freight

When freight "over" in one place it's likely short someplace else

EXAMPLE: 10 boxes of soap shipped from New York to Chicago
    2 boxes got mixed up and went to Cleveland
        Categorized in Cleveland as "freight without bills"
        Shipment arrived in Chicago categorized as "short freight"
        Cleveland will report to all terminals that they have two cases of freight without bills
        When it is traced, it will be forwarded to Chicago
        Special bill used called "astray freight bill" i.e., used to ship "over freight" to proper destination terminal
        This is why all freight on LTL loads should be adequately marked

How does driver fit into all this?
    Driver should try to prevent "over freight"
        Count, check cargo properly
        Oversee loading/unloading
        Prevent mixups

If an "over" situation occurs:
    Must identify specific piece(s) that are over--customer's invoice helpful
    Must call company for instructions
        Likely to be "short" somewhere else
        Get instructions from supervisor or dispatcher
    Identifies specific pieces that should be delivered
    Makes delivery, any exceptions noted

Handles "over" freight according to instructions
    Depends on specific situation
    May ship from there or return to terminal
Important steps:
    Identify the "over" freight
    Don't delivery it to the consignee
    Someone else is probably short

Visual 5 Example and Steps in Handling "Short" Freight

Shorts and Damages

First priority--do what you can to prevent them
Second priority--follow company procedures, rules
Claims and other actions will result

Claims
    Customer will file claim against company for short/damaged goods
    Customer must accept what is left of damaged, lost freight before he can file claim for loss or damage

Tracing
    Missing freight will result in tracing action
    Tracing Department needs accurate description of missing goods, what happened

Procedure for Handling "Shorts" During Delivery

Count and check before unloading, discover potential short before consignee does
Recount to make sure
    Double check for missing pieces (on the trailer, on the dock)
    Determine exactly which piece(s) are missing
    Follow company policy, call O, S, and D or dispatcher if required
    Company may know where missing piece(s) are
    Still on original dock
    "Over" freight somewhere else
    Will be able to explain to customer
Important: Get proper information on freight bill
    Describe exactly piece(s) that are missing
        Protect the company against cargo claims, especially those involving high value items, e.g., television sets
    Get all required signatures
        Driver and customer sign all exceptions on all copies of freight bill
        Future claims will be based on what driver and customer record on the freight bill

Visual 6 Example and Steps in Handling "Damaged" Freight

Procedures for Damaged Freight

Don't accept blame or try to place blame on anyone
Protect company's interest

- Don't lose "cool" and argue with customer
- Follow procedures for inspecting damaged goods
    - Cannot open containers to inspect unless there is apparent damage
    - COD Collect
        - Cannot open until paid for
        - Must accept/reject entire shipment
- Describe damage specifically as possible
    - Exact number of pieces damaged
    - Type of damage
    - Specific description of article damaged

EXAMPLE: Good and bad description

- Situation: 6 packages delivered to a retailer and the driver notices that 3 are wet. Driver and receiving clerk inspect damage.
    - Good description on freight bill: 3 packages wet--contents examined and two boxes baking soda found damaged
        - Specifically describes situation and shows what happened will be helpful for future claims
    - Poor descriptions: "Three packages wet", "Received in bad order subject to inspection", "Three packages damaged by water"
        - Too vague
        - Not helpful in future claims
- Note what happened to damaged freight
    - Did consignee accept it--show on freight bill?
    - Did driver reload and return it? Don't add loss claim to damage claim

Recap

- Try to prevent damage
- If it occurs, don't assess blame
- Follow company procedures and basic rules for inspecting damage
- Give good description of what happened
- Account for damaged part of shipment

Be Courteous to the Customer

- Driver who delivers freight is firstline contact with customer
- Thank him for his business
- Don't lose your cool when a discrepancy occurs
    - Be helpful, courteous
    - Follow company procedure
    - Direct customer to person(s) who can help him most, e.g., O, S, and D Department, Claims Department

4. PROBLEM-SOLVING SITUATIONS (30 minutes)

Present and discuss the following situations with the class.
Make sure they mention the key points for each situation.
It will be helpful if you can summarize key points on blackboard.

Questions For Discussion

1. What can the driver do to minimize cargo loss and damage in terms of securing his vehicle and the cargo?

2. What can the driver do to cut cargo loss related to paper handling?

3. What can the driver do in pickup/delivery situations to cut down on cargo loss or damage?

Situation #1

Driver arrives at XYZ Retailers with a shipment of clothing. The correct number of cartons are unloaded, but it is the wrong shipment--10 cartons of women's hats instead of 10 cartons of men's hats.

Key Points

First double check cargo to be sure.

Will have to call company about his problem since the correct shipment is probably somewhere else.

Situation #2

Driver arrives at ABC Retailers with 12 cartons of canned goods. Two cartons are apparently damaged. The receiving clerk gets very angry. He demands to know how it happened and refuses the entire shipment. He wants to know what driver is going to do about it.

Key Points

Don't lose temper

Remind clerk that claims can't be filed unless shipment accepted.

Try to apply normal procedures for damaged goods (inspect the damage, write the proper description on freight bills).

Situation #3

Driver arrives at Smith's Toy Store. Instead of 11 cartons of toys, there are 12. The receiving clerk says that it is okay. He'll accept the freight and wants driver to sign the freight bill.

Key Points

Follow basic procedures for over freight.

Check cargo against freight bill to specifically identify "over" freight.

Can double check against bill of lading to see if there was an error.

Don't give extra carton to recieving clerk unless specific permission received from supervisor.

Situation #4

It is apparent that one box of canned soup being delivered has been damaged--the box is ripped. How should driver proceed?

Key Points

Open the box so you can specifically describe any missing or damaged cans, e.g., need a description like "5 cans of soup badly dented in one of the cartons--entire carton refused".

Visual 1

Answer Key for Bill of Lading Exercise

UNIFORM ORDER BILL OF LADING

Original—Domestic

Shipper's No.
Agent's No.

X.Y.Z. TRUCKING COMPANY Carrier.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From NATIONAL OFFICE SERVICES COMPANY, Date TODAY, 19

At Street, 123 EAST AVE. City, BALTIMORE County, " State MD.

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned, and destined as shown below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own railroad, water line, highway route or routes, or within the territory of its highway operations, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

The surrender of this Original ORDER Bill of Lading properly indorsed shall be required before the delivery of the property. Inspection of property conveyed by this bill of lading will not be permitted unless provided by law or unless permission is indorsed on this original bill of lading or given in writing by the shipper.

Consigned to Order of ACME OFFICE SUPPLY COMPANY
Destination Street, 200 MAIN AVE. City, BALTIMORE County, " State MD.
Notify
At Street, City, County, State
Routing
Delivering Carrier X.Y.Z. TRUCKING Vehicle or Car Initial No. 2455

No. Packages	Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Subject to Correction)	Class or Rate	Check Column
2	12 COPIES OF OFFICE PROCEDURE MANUAL	30 LBS.	$6.80 CWT	
	C.O.D. FREIGHT CHARGES ONLY			

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

If charges are to be prepaid write or stamp here "To be Prepaid."

Received $
to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per
(The signature here acknowledges only the amount prepaid)

Charges advanced:

$

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

Note—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding per

Shipper Agent.
Per Per
Permanent address of Shipper: Street, City, State

Reasons for Cargo Loss and Damage

- Reasons
  - Pilferage
  - Grand Larceny
  - Hijacking
  - Lost or Misrouted Cargo
  - Cargo Damage
    - Poor Packing
    - Poor Handling
    - Poor Stacking
    - Poor Securement

- Consequences of Loss
  - Small Companies Go Out of Business
  - Drivers Who Are Negligent Get Docked or Lose Jobs
  - High Insurance Claims

- Prevention
  - Security
  - Correct Paper Handling Procedures
  - Correct Pick up and Delivery Procedures

Prevention Is Responsibility of Management, Freight Handlers, and Drivers, Working Together!

Visual 3

Which of These Situations Are O (Over) S (Short) or D (Damaged)?

Situation: The Bill of Lading Says 10 Cartons of Soap.

The Driver Arrives With:

	O., S., and D. or Okay?
7 Cartons Intact and 2 Smashed	
8 Cartons Intact	
9 Cartons Intact, 1 Damaged	
10 Cartons Intact	
11 Cartons Intact	

Procedures for Handling "Over" Freight

When Freight Is Over in One Place, It Is Probably Short Somewhere Else

Example

10 Boxes Shipped to Chicago

2 Boxes Get Mixed up and Are Routed to Cleveland

"Over" Freight to Cleveland

"Short" Freight to Chicago

Steps to Follow for "Over" Freight

- Identify Specific Pieces That Are Over
- Call Company for Instructions
- Make Delivery of Freight and Note Exceptions
- Do Not Deliver Over Freight to Wrong Place
- Handle Over Freight Based on Instructions
  - Return to Terminal
  - Ship to Proper Destination
  - Use "Astray Bill of Lading"

Visual 5

Procedures for Handling "Short" Freight

First Priority–Prevent the Situation

Second Priority–Follow Company Procedures

Steps to Follow

- Count and Check Before Unloading
- Discover "Short" Situation Before Consignee Does
- Double Check
- Call Company for Instructions if Required
- Call Company to Notify O, S, and D Clerk if Required
- Deliver Short Freight
- Get Proper Notation on Shipping Papers
  - Exact Description of Missing Pieces
  - Future Claims Based on Transaction
- Don't Try to Resolve Situation Yourself

Visual 6

Procedures for Handling "Damaged" Freight

- Prevent It if You Can
- Don't Try to Assess Blame
- Protect Your Company's Interests
- Follow Procedures for Inspecting Damaged Goods
- Describe Damage as Specifically as Possible
  - Exact Number of Pieces Damaged
  - Type of Damage

Example

"3 Packages Wet–Contents Examined and Two Boxes Baking Soda Found Damaged"

- Note Properly on Shipping Papers
- Indicate What Happened to Damaged Goods
  - Did Consignee Accept?
  - Did Driver Reload and Return It?
- Be Courteous and Don't Lose Your Temper
  - Customer Might Be Angry About Damaged Goods
  - Be Helpful
    - Direct Him to Your Company's Claims, O, S, and D or Claims Department

Notes:

UNIT 5.3
HOURS OF SERVICE REQUIREMENTS

UNIT 5.3 HOURS OF SERVICE REQUIREMENTS

PURPOSE

The purpose of this unit is to enable students to understand the basic concepts and requirements of the Federal Motor Carrier Safety Regulations - Part 395, "Hours of Service Regulations" and to develop the ability to complete a Driver's Daily Log and logbook recap.

NOTE: The Federal Motor Carrier Safety Regulations, Part 395 - Hours of Service of Drivers was amended during the times that this curriculum was being written. Included among those items changed, was that the former "Driver's Daily Log" became the "Driver's Record of Duty Status" and the required recordromat (driver's log - except for the graph grid) is no longer mandatory. Both the former terminology and format will be utilized herein, to enable inuctors to continue to employe current training materials and trainig aids.

OBJECTIVES

Performance Objectives

Students must

- comply with hours of service regulations.
- maintain a complete, neat, and accurate driver's daily log and the logbook recap.

Knowledge Objectives

Students must know:

- all the requirements of Part 395 of The FMCSR covering Hours of Service.
- how to comply with the Hours of Service Regulations.
- the procedures for completing driver's daily log.
- the procedures for using logbook recap.
- the consequences of failure to comply with hours of service regulations.

Skill Objectives

Students must be able to

- interpret hours of service categories correctly.
- perform arithmetic calculations necessary to recap and apply totals to the hours of service regulations.

- determine driving hours remaining on a particular day or tour of duty.

Attitude Objectives

Students must believe that:

- compliance with hours of service regulations is for their own safety.
- keeping an accurate log and complying with hours of service regulations is totally the driver's responsibility.
- they subject themselves and their employers to prosecution if they fail to keep logs accurately and to comply with regulations.

LESSONS

Lesson 1.	**Basic Requirements of Hours of Service Regulations (Classroom)**	**2 hours 15 minutes**
Lesson 2.	**Complying with the Hours of Service Regulations (Classroom)**	**1 hour 45 minutes**
Lesson 3.	**Log-Keeping Exercise (Classroom)**	**1 hour 45 minutes**

LESSON 1 BASIC REQUIREMENTS OF HOURS OF SERVICE REGULATIONS (CLASSROOM)

Overview

Time Allotted: 2 hours 15 minutes

Prerequisites: Unit 1.1

Purpose:

The purpose of this lesson is to explain the reasons behind the Hours of Service regulations and the basic concepts and forms which must be understood to comply with those regulations. The instructor will demonstrate how to fill out a daily log and recap form and the students will complete both of those forms in short classroom exercises. Throughout the lesson the students will refer to their logbook and Part 395 of the Federal Motor Carrier Safety Regulations. Students will be asked to read appropriate section of Part 395 at various points in the lesson.

Materials

Instructional Aids

Visuals 1 - 11

Student Material

1. Current copy of the Federal Motor Carrier Safety Regulations, Part 39 - Hours of Service of Drivers
2. Sample page from a Driver's Daily Log, in Unit 5.3 of Student Manual
3. Driver's Daily Log Completion Exercise, in Unit 5.3 of Student Manual
4. Log Recap Exercises, in Unit 5.3 of Student Manual

Instructor Material

Current copy of the Federal Motor Carrier Safety Regulations, Parts 390-397 (latest issue is dated October 31, 1983 on cover)

A regulation logbook (reprinted in this lesson)

A 6" ruler or straight edge (reprinted in this lesson)

Equipment

Blown-up (photo enlarged - wall chart size) copies of the Driver's Daily Logbook page and a log recap form. These should be covered with clear plastic to enable entries to be made with a grease pencil and then wiped clean again with a rag.

Content

Activity or Topic	Approximate Time
1. OVERVIEW AND INTRODUCTION TO LOGBOOKS	10 minutes
2. STATUS OF DRIVER	10 minutes
3. DRIVING AND ON-DUTY RULE	20 minutes
4. PREPARING A DAILY LOG	50 minutes
5. COMPLETING A LOG RECAP	45 minutes
	2 hours 15 minutes

1. OVERVIEW AND INTRODUCTION TO LOGBOOKS (10 minutes)

Visual 1 Overview of Hours of Service Regulations

Purpose of Hours of Service Regulations

Basic Reason

- To prevent fatigued drivers from operating vehicles
- To protect driver and public

Dangers of Fatigue (Subject discussed in more detail in Unit 5.5)

- Underlying cause of many driving accidents
- Effects on Driver
  - Lack of alertness
  - Late or slow reactions to emergency driving situations
  - Falling asleep and losing control of vehicle

Basic Requirements of Hours of Service Regulations

Intended to limit hours that commercial truck and bus drivers can operate without resting

- Rules restrict number of hours driving or working
  - Not permitted to drive more than 10 hours after 8 hours rest
  - Not permitted to drive after 15 hours on duty
  - Cannot drive after being on duty for a total of 60 hours in any 7 consecutive days or a total of 70 hours in any 8 consecutive days or a total of 70 riod
- Requires drivers to maintain daily logs and recap forms,
  - To document that they are following rules, and
  - Logs kept each day whether working or not

Who Must Comply

- Every driver of motor vehicle operated in interstate or foreign commerce
- When operating a vehicle in excess of 10,000 GVW

How Does a Driver Comply

- Knows and understands regulations
- Fully obeys them
- Uses driver log book to document he is following the rules

Why Comply

- It is a Federal law
- Protects driver safety as well as safety to public
- Driver and carrier subject to penalties for violation

Distribution of Logbooks

Instructions

Distribute logbook to each student
Inform students:
    will refer to logbooks throughout classroom training in this unit
    will learn to use logbooks as a result of this training
    are required to maintain logbook after successful completion of this unit of training

NOTE: Driver's multi-day logs not discussed here, will be covered in Lesson 2 of this unit to help students to assimilate basic concept first.

Introduction to Logbooks

Daily Logs

(Direct students' attention to copy of daily log in their logbook)
Logbook consists of series of daily logs for month
Driver fills out daily log each day when employed by carrier
    Must fill out whether working or not
    Entries will indicate status of driver, e.g., driving, off-duty, etc.
Two copies to be filled out
    Copy 1 submitted to carrier (or school, in this instance)
    Copy 2 kept in logbook as driver's record
    Drivers must have copies of previous consecutive days in their possession at all times when driving

Recap Form

(Direct students' attention to copy of recap forms in logbook)
Help driver determine how much driving time (if any) is still available
Printed as separate section and/or on right side of daily log
Note that the recap is a driver's aid not a legal requirement like the log

Answer Student Questions

Allow time for students to briefly examine logbook
Answer general questions before proceeding with hours of service concepts

2. STATUS OF DRIVER (10 minutes)

Visual 2 Example of Status of Driver Categories

Status Situations

A driver while employed by a motor carriers is always in one of four status situations.

Off-Duty Time

Anytime the driver is relieved of responsibility by the carrier such as

- Days off
- On vacation
- On sick leave
- On lunch break and driver is given written notification that he/she is not responsible for watching the vehicle and its contents, provided the length of the break period is specified

Sleeper Berth Time

Time spent when actually resting or sleeping in sleeper berth

Does not mean resting or sleeping in passenger side while other driver is driving

Applies when: driving solo (vehicle parked) or as member of two-man team (other person driving)

Driving Time

All time spent at the driving controls of the vehicle for the carrier

Includes sitting and waiting in traffic, sitting and waiting for snow to be removed in emergency so driver can proceed

On-Duty, Not Driving

Time spent under the direction or supervision of carrier but not driving

- Loading and unloading
- Helping out on the dock
- Waiting for shipping papers before dispatch
- Washing vehicle or fixing something on it

In short, driver is not completely free to do what he wants as in off-duty status

(Ask students to read FMCSR 395.1 and 395.2. Discuss and answer questions. Then complete the student exercise below)

Student Exercise: Identifying Correct Status

Visual 3 Identifying Correct Status

Instructions

Ask students to classify each situation into one of the four status situations.

Discuss answers using key below.

	SITUATION	ANSWER
A.	Broken down on the highway awaiting help	On duty (not driving) time
B.	Supervising loading of trailer	On duty (not driving) time
C.	Sleeping in sleeper berth	Sleeper berth time
D.	On vacation	Off duty time
E.	Reading road map to aid driver	On duty (not driving) time
F.	Driving to work in your car	Off duty time
G.	Stopped at weigh station to get vehicle inspected	On duty (not driving) time
H.	Time spent at scene of accident collecting necessary information	On duty (not driving) time
I.	At lunch-authorized (written) company break, not responsible for vehicle contents	Off duty time
J.	Driving tractor across town to pick up loaded trailer at shipper's dock	Driving time

3. DRIVING AND ON-DUTY RULE (20 minutes)

Visual 4 Driving Time Rule

Requirements for 8 Hours' Consecutive Rest

Eight hours' consecutive rest, e.g., off-duty and resting, are required after:

- any period of driving for 10 hours
- any period of being on duty, whether driving or not, for 15 hours

Sleeper berth exception

- Eight hours rest can be obtained in two periods if sleeper berth is used
- Each period of rest must be a minimum of 2 hours or it does not count towards the 8 hours, e.g., in the sleeper berth for 2 hours, drive while co-drivers rests, in the sleeper berth for 6 hours. (NOTE: Discussed in more detail later in the Unit)

Rest requirements are stated in the 10 and 15 hour rules which are the heart of the Hours of Service driving rule.

10-Hour Rule

Permitted to drive for 10 hours after 8 hours consecutive off duty.
Not permitted to drive again until off duty for another 8-hour period.

2-Hour Exception

Can drive additional 2 hours under certain specified conditions.

Conditions:

- The run is usually 10 hours or less.
- Delays by unexpected traffic or weather conditions.
- Delay not anticipated by driver or company when run began.

EXAMPLE: Normal daily run from point A to point B is 9 hours
No problems anticipated by you or dispatcher when run begins
Unexpected fog conditions slow trip considerably
Takes 11 hours to complete run instead of 9

Use

Do not abuse the two-hour exception
Only for unusual situations under very specific conditions
Cannot be used when driver at 15th hour

15-Hour Rule

Cannot drive after on-duty for 15 hours
Does not limit time driver can work in a day
Limits only right to drive after working 15 hours

EXAMPLE: Driver arrives at work, helps loading, unloading other work around the terminal
Officially "on duty" for 15 hours without driving
Dispatcher then wants him to make a short 30-minute run
NOT LEGAL

Purpose: (As with all driving rules) to protect the public
After 15 hours on duty, driver is too tired to drive, even a short haul

(Ask students to read FMCSR 395.3, discuss and answer questions)

Visual 5 On-Duty Rule

On-Duty Rule

In addition to basic 10 and 15 hour rules, drivers are subject to 60- or 70-hour rules.
On duty definition
Starts when driver reports to work or is required to be ready for work.

60-Hour Rule

Driver cannot drive after being on duty 60 hours in any consecutive 7-day period, e.g., combination of driving and other duties

70-Hour Rule

Companies which operate on a 7-day workweek may use the 70-hour rule instead of the 60-hour rule.
70-hour rule states that driver cannot drive after being on duty more than 70 hours in any consecutive 8-day period.

(Ask students to read FMCSR 395.2, discuss and answer questions, then complete review below)

Questions for Review

Review basic rules with following questions

Question 1

If you work on the loading dock for 8 hours and your supervisor asks you to drive a load calling for a 4-hour run, can you do this legally within the Hours of Service Regulations?

Answer

Yes. If enough on-duty time left which will not violate 60- or 70-hour rule. A 12-hour workday does not violate 15-hour rule.

Question 2

You have been driving 10 hours on a scheduled 10-hour run. Because the traffic has been unusually heavy, you will be delayed somewhat. You estimate it will take 3 more hours to finish the run. Your vehicle does not have a sleeper cab. Can you drive straight through? Can you stop an hour and take a nap and then finish the run?

Answer

No. You may drive only 2 extra hours under the emergency rule. The sleeper cab rule does not apply because you need a full 8 hours rest after driving 10 hours.

Question 3

You have just finished working for Company A and you start a new job with Company B today. In the last 7 days you have worked 60 hours. Company B wants you to put in a full 8 hours today on duty, but not driving. Is it legal under the Hours of Service Regulations?

Answer

Yes, but you could not drive.

Question 4

Are there any circumstances when you can work 24 consecutive hours under the Hours of Service Regulations?

Answer

Yes. If you have enough time remaining under 60- or 70-hour rule. However, you can't drive more than 10 hours without 8 hours' rest. And you can't drive after being on duty for 15 hours, or 60 hours in a 7 day period or 70 hours in any 8 day period.

4. PREPARING A DAILY LOG (50 minutes)

Visual 6 Example 1 -- A Completed Daily Log

Instructions

Use visual 5 as reference point to explain entries in Daily Log OR
Use a transparency of a blank log or blown up blank log to make entries suggested by Visual 5 as you make your expanation of entries

Daily Logs Are For Each 24-Hour Period

Usually run from midnight to midnight
Some run from noon to noon

Maintain Daily Log and Keep it Current to Last Change of Duty Status

Keep daily log whether on duty or off duty
Update it each change of duty status

Logs May be Inspected When You Drive

- Part of safety inspection
  - DOT and State inspector check periodically
  - Also reviewed in case of accident
- Can put driver "out of service"
  - If log not current, innaccurate, indicates violation of hours of service regulations
  - Can also subject driver to fines

Basic Rules for Filling Out a Daily Log

Must make original and one copy
First rule: be neat and legible
If sloppy, carrier may ask driver to do it over again
Gives wrong impression to inspectors, i.e., think driver doesn't care about logs
Also, logs may be used for payroll

Explanation of Entries on Daily Log

- Top of log
  - Most entries self-explanatory
  - Driver must enter all information
    - Only exception--carrier may enter or preprint carrier name/address
  - Total mileage today (no longer required in regulations, but may be required by the employer if desired)
    - Used only if driving team used total of mileage for the driving team

- Total miles driven--applies to the driver who filled out the log
- Signature
  - Driver must sign in full
  - Attests to accuracy of log
  - Co-driver name (if any) printed below or "none" (no longer required by the regulations but may be required by employer if desired)
  - Co-driver has his own daily log

Graph Part of the Log

- Use time standard in effect in home terminal
- Use a ruler for straight lines
- Make entry in middle of graph area so status is clear
- Mark it off in 1/4, 1/2, 3/4 hourly increments or decimals .25, .5, .75
- Make a record each time you change status
- Multiple stops in one place may be shown as one, e.g., town, city
- Don't guess at hours
  - Errors become too obvious
  - Can be checked against other records, e.g., toll receipts, trip records

All On-Duty Time Must be Accurately Shown

- Log must show time and be accurate record of all time spent on duty regardless of the amount of time
- Stops of less than 15 minutes which cannot be shown within the time markers should be entered in the "Remarks" section

Grouping On-duty Time

- All stops in one city, village or town may be grouped and computed as one stop, e.g., several pickups, deliveries
- Sum of all these stops should be shown as one consecutive on-duty not driving line
- Driving time should be entered on log after the last stop

Remarks Section

- Shipping papers--Enter B/L, manifest or freightbill number or name of shipper and commodity (no longer required by regulations)
- Change of status
  - Print name of place at each status change
  - Do not have to describe why the change occurred, e.g., stopped for meal
- Explain 2-hour exception--Must explain conditions of any situation that exceeds 10-hour rule

Origin/Destination (no longer required by regulations)

Show origin and destination
If driver will return to starting location during the day, enter destination and return
Otherwise, show original starting point and final destination
If trip takes more than 24 hours, continue to use same original destination until trip is complete

Total Hours in Each Status

Can use decimals or fractions
Recommend decimals for ease in computation
Make sure all hours add up to exactly 24 hours

Visual 7 Example 2 -- Completed Daily Log

Instructions

Use Visual 7 as reference point to explain the following entries made by driver John E. Doe

Explanation of Graph Entries for John E. Doe

Covers first day of trip from Richmond to Newark and Boston to deliver cargo of miscellaneous freight.
Activities:
- Driver and co-driver report to duty at 6 a.m. (Off duty till then)
- From 6 to approximately 7:30, conduct pretrip and supervise loading, review shipping papers (on duty, not driving)
- John E. Doe drives from 7:30 a.m. to approximately noon (driving)
- Involved in minor accident in Fredericksburg at 9 a.m., 1/2 hour logged as (on duty, not driving)
- From noon to 1 p.m., stopped for lunch, company policy requires driver to be responsible for vehicle/load (on duty, not driving)
- From 1 to approximately 5:30 p.m., sleeping in sleeper berth while co-driver drove (sleeper berth)
- From 5:30 to 6:00 p.m., reported to dispatcher at Newark terminal, gave information about accident (on duty, not driving)
- From 6 to 7 p.m., vehicle unloaded under care and supervision of dispatcher while John E. Doe ate evening meal at diner (off duty)
- From 7 to 11 p.m., John E. Doe drives to Hartford (driving)
- From 11 to 11:30 p.m., vehicle broke down, minor repairs (on duty, not driving)
- At 11:30 p.m., returned to sleeper berth while co-driver took over (sleeper berth)

Top of Form

Information obtained from trip records.
  440 miles entered as total driven for the day.
  270 miles entered as miles driven by John E. Doe.

Routing and Filing of Copies of Drivers Daily Log

Original copy.
Driver sends (mails) to home terminal each day.
Worked for more than one carrier in a 24-hour period.
  Must supply each carrier with complete copy of Daily Log.
  Original copy goes to regularly employing carrier.
  Will have to copy on to second original.
Filing and retention of logs
  Forwarded to principal place of business (home office) by 20th of each month.
  Must remain on file for 6 months.
Driver keeps copy of log in possession while on duty for previous 7-day period.

Additional Examples

Use blown up log or transparencies to present and discuss several more daily log examples.
Log showing 24 hours off duty.
Log showing short driving situations similar to example just given.
Answer student questions and then have students complete the log preparation exercise which follows.

Log Preparation Exercise

The purpose of this exercise is to give students initial practice in filling out a simple daily log provided in Student Manual from information provided therein. The following page is a reprint of the exercise contained in the Student Manual.

(Reprinted from Unit 5.3 in the Student Manual)

DRIVER'S DAILY LOG COMPLETION EXERCISE

This exercise will be completed in class. Brief instructions are provided below for reference. The instructor will answer your questions about the exercise and help you if you have any problems. You may also refer to the reference material which explains how to fill out a Daily Log.

Instructions

Fill out a Driver's Daily Log form and total your hours.

- Use your name and today's date.
- Your company is Fast Freight Inc., 290 West 44th Street, New York, N.Y.
- Vehicle numbers: Tractor 6244, Trailer 53306. If you change trailers you can indicate by using the notation "C/O."
- Freight document numbers: Manifests #677453-383 and #153457-041.

Information For Filling in Log Sheet

1. At one minute past midnight, you are home, off-duty. At 8 a.m. you are given an "alert" call. Your home is in Toledo, Ohio.
2. At 10 a.m., you report for work at the terminal in Toledo. You pre-trip your vehicle from 10:00 to 10:30 a.m.
3. At 10:30 you start driving. You drive for 1-1/2 hours to Willard, Ohio.
4. In Willard, Ohio, you stop to change trailers. The new trailer number is 62470. You are finished by 1 p.m. and driving again.
5. You drive for 6 hours and 30 minutes to Milesburg, Pa., where you stop at 7:30 p.m. for a meal. It is this company's policy that the driver remain responsible for the vehicle and load at all times.
6. At 8:30 p.m., you start driving again and drive for 1-1/2 hours, until you reach your home terminal in Red Deer, Pa.
7. At 10 p.m., you are relieved of all responsibility to work or be ready for work. You go home and go to bed.
8. The total miles you drove--450 miles.

(End of reprint from Student Manual)

Directions

Ask students to read directions for this exercise which are contained in Unit 5.3 of their Student Manual.

Allow 15-18 minutes for students to complete the Daily Log for the example in the exercise. Students may refer to any reference material. You may answer questions or give any assistance necessary as the purpose of this exercise is to give students a chance to fill out a simple daily log.

Reviewing the Answers

Visual 8 Answer Key

Review the exercise answers with the entire class by presenting Visual 8 which is the completed daily log for the exercise.

Do not collect and review the work as this exercise was intended for an initial log keeping practice. You will be reviewing and evaluating student performance in Lesson 3 of this Unit.

5. COMPLETING A LOG RECAP (45 minutes)

What is Log Recap or Summary Form?

- Method of keeping track of how many hours driving in last 6, 7, or 8-day period.
- Log summary forms appear in log books.
  - Usually a form to aid in computing number of hours available.
  - Also a recap section on daily log to let driver summarize and immediately see how much time available tomorrow.

Why Maintain a Log Recap or Summary?

- To find out if you have violated 70/60 hour, 8/7 day rule.
- To determine how many hours can legally work tomorrow.
- Will not tell you if in violation of 10- or 15-hour rule.
- Must examine each daily log to discover those violations.

What "Time" Should be Included as Part of Log Recap or Summary?

- On duty time is combination of two status situations on daily log.
  - Driving time plus
  - On duty, not driving.
- Example shown in Visual 7, driver was on duty for 17-1/2 hours in last 24-hour period.

Direct Method of Determining Hours Available

8-Day/70 Hour Example

- Add hours of last 7 days
- Subtract it from 70 hours
- Result equals number of available tomorrow

7-Day/60 Hour Example

- Add total hours of last 6 days
- Subtract it from 60 hours
- Result equals number of hours can legally work next day

Visual 9 Steps in Computing Log Summary

Using Log Recap or Summary Form

Using a recap or summary form saves the labor of adding hours over last 6 or 7 days

Most logbooks have summary form which can be used for 8-day, 70-hour rule and 7-day, 60-hour rule

Steps in completing log summary 8-day, 70-hour example
- In example, driver has driven 10 hours today
  - Today is third day of month
  - Shown as day "3" on summary
  - Last 7 days of previous month also shown
    - Saves looking it up on previous month's record
    - After 7th day of the month, it isn't necessary

Step 1 Determine Number of Hours Worked in Last 8 days
- Add total of previous 7 days and put hours in proper column
  - Column 4 shows total hours worked previous 7 days
  - Total was 60.50 (6-1/2 hours)
- Add additional on duty hours for this day to get total for full 8-day period
  - Worked 10 hours today
  - Shown in column 1 for day 3
  - 10 hours + 60.50 hours = 70.50 hours
  - Write it in column 3
- Result is how many hours worked in last 8-day period
  - Have worked 70-1/2 hours in last 8 days

Step 2 Determing How Many Hours Worked in Last 7-day Period
- To tell if in violation, must determine if exceeded 70 hours in last 7-day period
- Count last 8 days back on log summary form to see how many hours worked on that 8th day back
  - Worked 5 hours on eighth day back
- Cross out 8th day back
  - Crossing out eighth day always makes the next eighth day easy to find
  - (Don't have to count)

Subtract "total hours on duty" on the 8th day back from "total hours on duty" for full 8-day period
  70.50 - 5.00 = 60.50
  Write number in column 4
Result equals total hours on duty during last 7 days
  In example, driver has worked 65-1/2 hours in last 7 days
If more than 70 hours, you are in violation

Step 3 Determine how many hours legally available to work the next day

70 hours is maximum allowed for consecutive 7-day period
Subtract "Total Hours on Duty During Last 7 Days" from 70 hours
  Subtract number in column 4 from 70
  70 - 65.50 = 4.50
Result equals number of hours legally available to work tomorrow
  Driver can only legally work 4-1/2 hours tomorrow

Advantage of recap or summary chart
  Easier to total hours
    Only have to add today's hours and drop the eigth-day back
    Don't have to add up 7 numbers
  Not as likely to make mistakes

Keeping a running total of hours over the last 7 days or 6 days
  Allows driver to tell quickly how many hours can be legally worked tomorrow
  Helps prevent exceeding the limit

Same process is used for 60 hour rule

Directions

Allow time for students to complete log recap exercises which are contained in Unit 5.3 of their Student Manuals
Instructions and examples for those exercises are reprinted on the following page for your convenience
Allow time for students to complete computations for Example 1 which is a 7 day/60 hour example
Instruct students to use blank recap form provided in their Student Manual NOT the log recap form(s) in their log book
Answer questions and assist in making computations as necessary
Review answers using Visual 10
Repeat exercise using Example 2 which is an 8 day/70 hour example.
Use Visual 11 as the Answer Key

Answer Key

Visual 10 Answer Key - 60-hour example

Visual 11 Answer Key - 70-hour example

(Reprinted from Unit 5.3 in the Student Manual)

Log Recap Exercise

Example 1: 7 Days/60 Hours

Instructions

In the sample Log Recap Form shown below, the on-duty information is shown for the last 7 days of March and the first day of April.

Fill out the Log Recap Form for the period April 2 - April 7 using the information which follows. Determine the amount of on-duty time you have for each succeeding 24 hour period. The driver is under the 60 hour rule.

	Hours on Duty
April 2	6
April 3	0
April 4	0
April 5	10
April 6	8-1/4
April 7	12

1	2	3	4	5
LAST SIX CONSECUTIVE DAYS IN PRECEDING MONTH	DAILY TOTAL DUTY & DRIVING HOURS	7 DAYS — 60 HOURS		
	0 ✓	TOTAL ON DUTY HOURS LAST 7 DAYS	TOTAL ON DUTY HOURS LAST 8 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (60 MINUS) (COL. 4) ▼
	9			
	8			
	10½			
	8			
	9			
1	8	52½	52½	7½
2				
3				
4				
5				
6				
7				

Example 2: 8 Days/70 Hours (To be completed in class)

Instructions

Use the 8 day/70 hour sample form below to complete this part of the exercise. The instructions are the same as for the first part of the exercise. The conditions are different since the driver is under the 70-hour rule.

	Hours on Duty
April 2	10
April 3	0
April 4	0
April 5	10
April 6	8-1/4
April 7	12

1	2	3	4	5
DAILY TOTAL DUTY & DR. HRS				
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH	8	8 DAYS — 70 HOURS		
	0	TOTAL ON DUTY HOURS LAST 8 DAYS	TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ▼
	9			
	8			
	10½			
	8			
	9			
1	8	60½	52½	17½
2				
3				
4				
5				
6				
7				

(End of Reprint from Student Manual)

Visual 1

Overview of Hours of Service Regulations

Purpose

- To Prevent Drivers From Operating When They Are Fatigued
- To Protect Driver and the Public

Limits

- 10 Hours of Driving After 8 Hours Rest
- No Driving After 15 Hours On Duty
- Limits the Number of Hours Driving in a Week

Who Must Comply?

- Drivers of Vehicles in Interstate or Foreign Commerce

How Do Drivers Comply?

- Know the Regulations
- Follow the Regulations
- Maintain a Logbook to Show Compliance

Examples of Status of Driver Categories

Off Duty

Examples:

- On Vacation or Day Off
- Driving to Work in Personal Car
- Lunch Break, Not Responsible for Vehicle

Sleeper Berth

Examples:

- Co-Driver Driving—You Are Sleeping in Berth
- Truck is Parked—You Are Sleeping in Berth

Driving

Examples:

- Operating Controls of Vehicle
- Stuck in Traffic

On-Duty (Not Driving)

Examples:

- Sitting in Passenger Seat in Cab
- Conducting Pretrip Inspection
- Loading/Unloading
- Waiting to Be Dispatched
- Taking Care of Vehicle During Break Down
- Completing Trip Reports or Other Required Paperwork
- On Lunch Break With Full Responsibility for Vehicle

READEX FICHE

Visual 3

Identifying Correct Driver Status

Situation *Answer*

A. Broken Down on the Highway Awaiting Help ________
B. Supervising Loading of Trailer ________
C. Sleeping in Sleeper Berth ________
D. On Vacation ________
E. Reading Road Map to Aid Co-Driver ________
F. Driving to Work in Your Car ________
G. Stopped at Weigh Station to Get Vehicle Inspected ________
H. Time spent at Scene of Accident Collecting Necessary Information ________
I. At Lunch–Authorized company Break, Not Responsible for Vehicle/Load ________
J. Driving Tractor Across Town to Pick up Loaded Trailer ________

Status Categories

1. Off Duty
2. Sleeper Berth
3. Driving
4. On Duty (Not Driving)

Visual 4

The 10 and 15 Hour Rules

Stay Awake! Know the Driving-Time Rule

How Many Hours Can You Drive Without Being in Violation? After 8 Hours Straight Off-Duty, You Can Drive for 10 Hours. You Can't Drive Again Until You Have Been Off-Duty for Another 8 Consecutive Hour Period.

10-Hour Driving Rule

1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10
Hours Off Duty								Hours of Driving Time									

You Can Drive up to 2 Extra Hours If Driving Conditions Are Poor.

Extra Driving Time

- Not Normal Bad Weather or Traffic.
- Only Unexpected Conditions.

You Get Up to 2 Extra Hours if and Only if, You Could Have Made the Run in the 10-Hour Limit Under Normal Conditions.

Also, You Can't Drive After You Have Been on Duty for 15 Hours, or 60/70 Hours.

15-Hour On-Duty Rule

Visual 5

The On Duty Rule

- On Duty
  - When Driver Is Required to Be Ready for Work
  - When Driver Reports to Work
  - When Driving or Performing Other Duties for Carrier

7-Day/60 Hour Rule

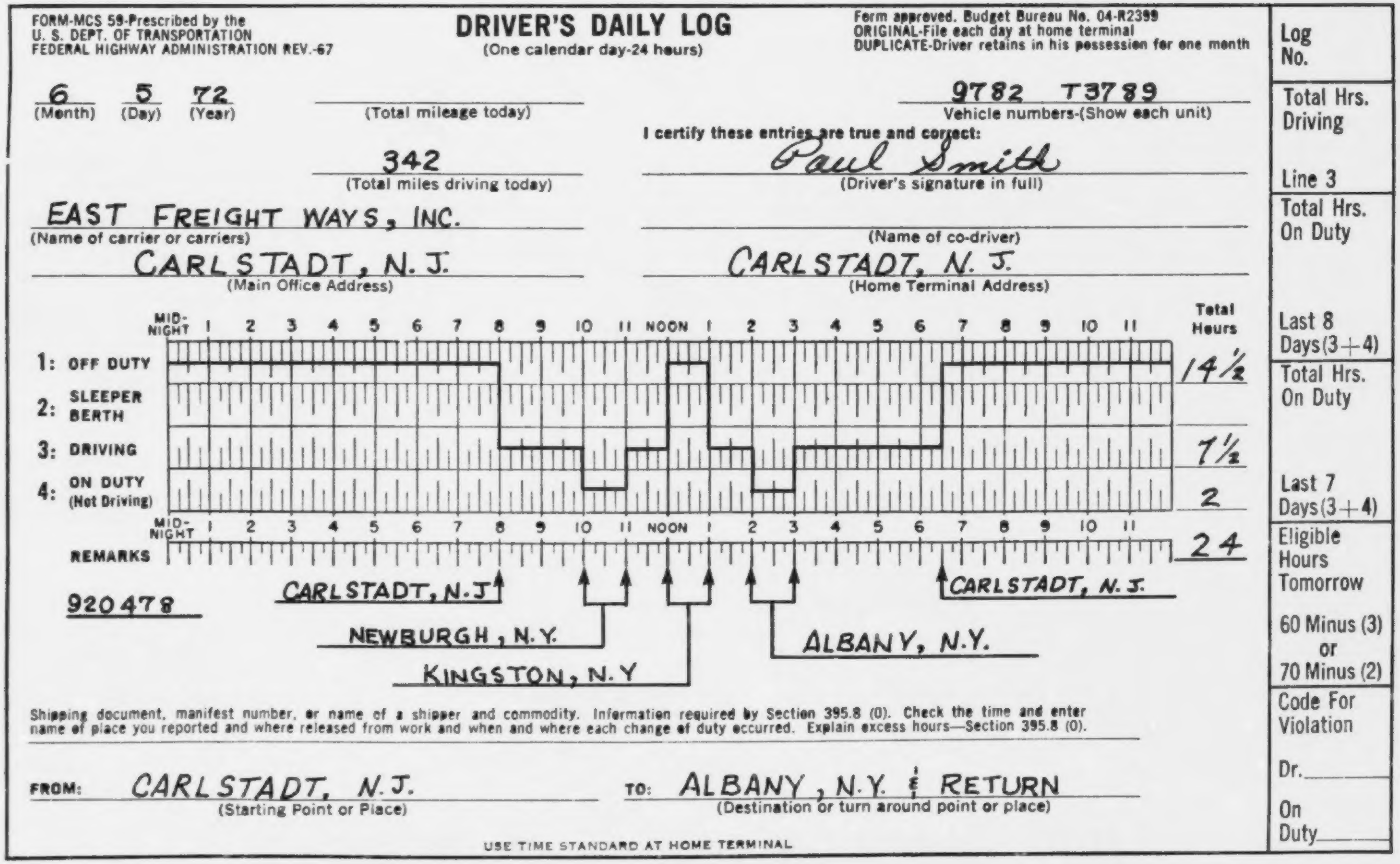
- Cannot Drive After Being On-Duty (On-Duty, Not Driving PLUS Driving) 60 Hours in Any Consecutive 7 Day Period

8-Day/70 Hour Rule

- Company That Works 7-Day Week May Elect to Use This Rule
- Cannot Drive After Being On-Duty (On-Duty, Not Driving PLUS Driving) 70 Hours in Any Consecutive 8-Day Period

Responsibility of Driver and Management to Keep Track of Hours So No Violation Occurs!

Example 1–A Completed "Professional Looking" Daily Log



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

6 (Month) 5 (Day) 72 (Year)

(Total mileage today)

9782 T3789
Vehicle numbers-(Show each unit)

342
(Total miles driving today)

I certify these entries are true and correct:
Paul Smith
(Driver's signature in full)

EAST FREIGHT WAYS, INC.
(Name of carrier or carriers)

(Name of co-driver)

CARLSTADT, N. J.
(Main Office Address)

CARLSTADT, N. J.
(Home Terminal Address)

	Total Hours
1: OFF DUTY	14½
2: SLEEPER BERTH	
3: DRIVING	7½
4: ON DUTY (Not Driving)	2
	24

REMARKS

920478

CARLSTADT, N.J.

NEWBURGH, N.Y.

KINGSTON, N.Y

ALBANY, N.Y.

CARLSTADT, N.J.

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: CARLSTADT, N.J.
(Starting Point or Place)

TO: ALBANY, N.Y. & RETURN
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Log No.

Total Hrs. Driving

Line 3

Total Hrs. On Duty

Last 8 Days (3+4)

Total Hrs. On Duty

Last 7 Days (3+4)

Eligible Hours Tomorrow

60 Minus (3) or 70 Minus (2)

Code For Violation

Dr.____

On Duty____

Example 2 – A Completed Log

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

May (Month) 1 (Day) 1944 (Year)

440 (Total mileage today)

Tractor #12 - Trailer #12
Vehicle numbers-(Show each unit)

270 (Total miles driving today)

I certify these entries are true and correct:

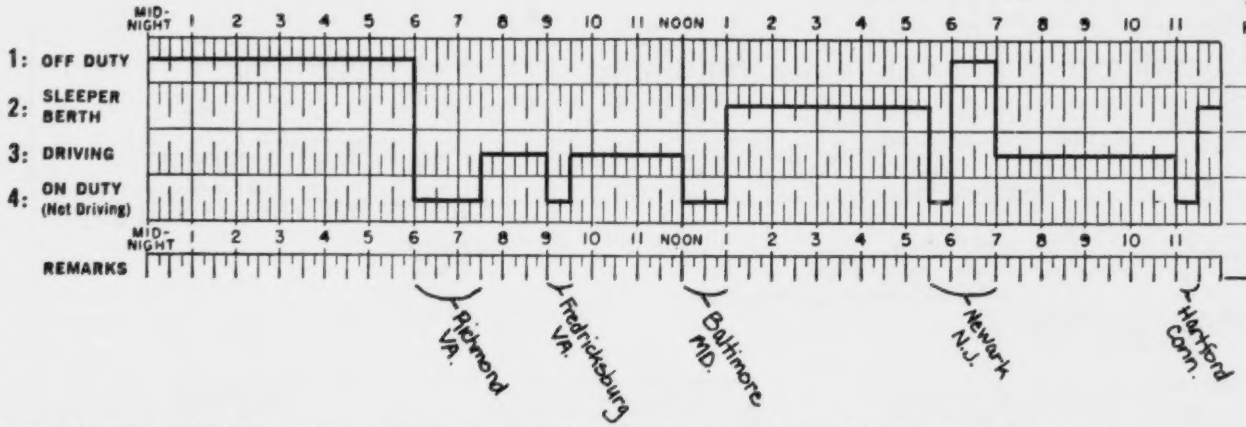
John E. Doe
(Driver's signature in full)

Washington Transportation Co.
(Name of carrier or carriers)

J. R. Smith
(Name of co-driver)

Washington D.C.
(Main Office Address)

Richmond Va.
(Home Terminal Address)



	Total Hours
1: OFF DUTY	7
2: SLEEPER BERTH	5
3: DRIVING	8
4: ON DUTY (Not Driving)	4
	24

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: Richmond Va.
(Starting Point or Place)

TO: Boston, Mass.
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Log No.

Total Hrs. Driving 8 Line 3

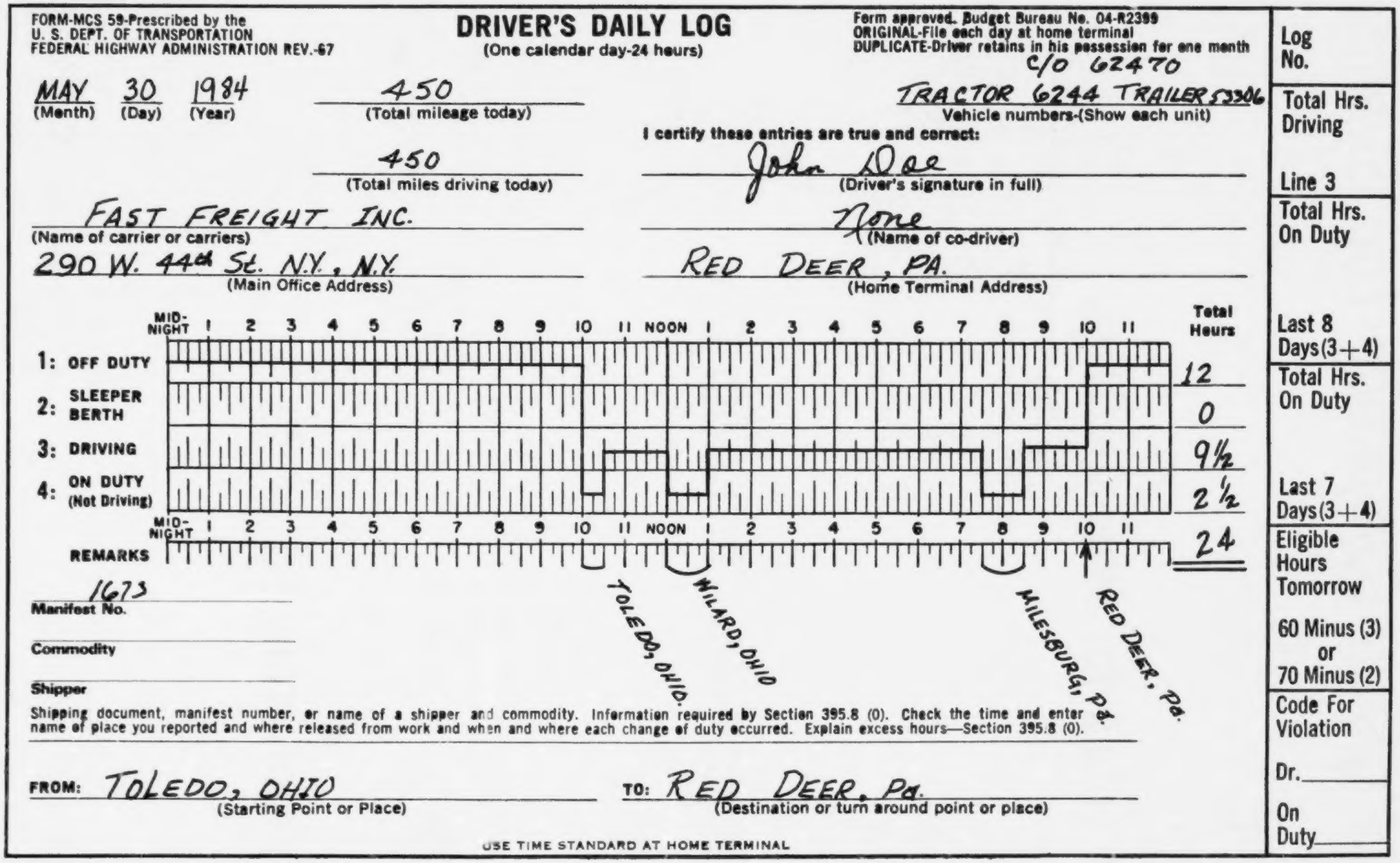
Total Hrs. On Duty 68 1/2 Last 8 Days (3+4)

Total Hrs. On Duty 60 1/2 Last 7 Days (3+4)

Eligible Hours Tomorrow 9 1/2
60 Minus (3) or 70 Minus (2)

Code For Violation
Dr.
On Duty

Answer Key to Daily Log Exercise



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

C/O 62470

MAY (Month) 30 (Day) 1984 (Year)

450 (Total mileage today)

TRACTOR 6244 TRAILER 53306
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

450 (Total miles driving today)

John Doe
(Driver's signature in full)

FAST FREIGHT INC.
(Name of carrier or carriers)

None
(Name of co-driver)

290 W. 44th St. N.Y., N.Y.
(Main Office Address)

RED DEER, PA.
(Home Terminal Address)

	Total Hours
1: OFF DUTY	12
2: SLEEPER BERTH	0
3: DRIVING	9½
4: ON DUTY (Not Driving)	2½
	24

REMARKS

TOLEDO, OHIO.
WILARD, OHIO
MILESBURG, Pa.
RED DEER, Pa.

Manifest No. 1673

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: TOLEDO, OHIO
(Starting Point or Place)

TO: RED DEER, Pa.
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Log No.

Total Hrs. Driving

Line 3

Total Hrs. On Duty

Last 8 Days (3+4)

Total Hrs. On Duty

Last 7 Days (3+4)

Eligible Hours Tomorrow

60 Minus (3) or 70 Minus (2)

Code For Violation

Dr. ____

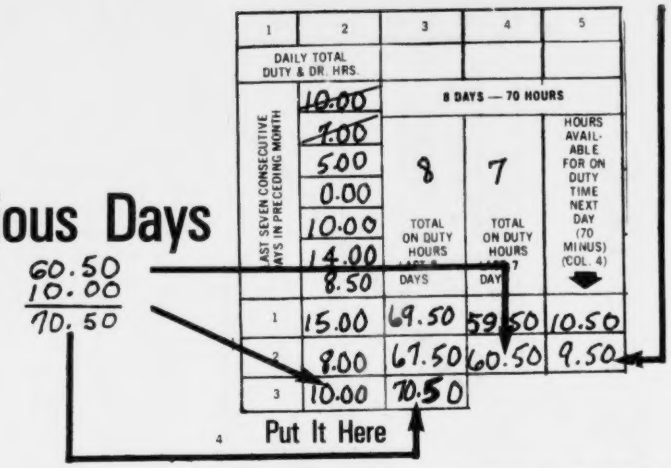
On Duty ____

Visual 9

Steps in Computing Log Summary

Step 1

Add Totals for Previous Days



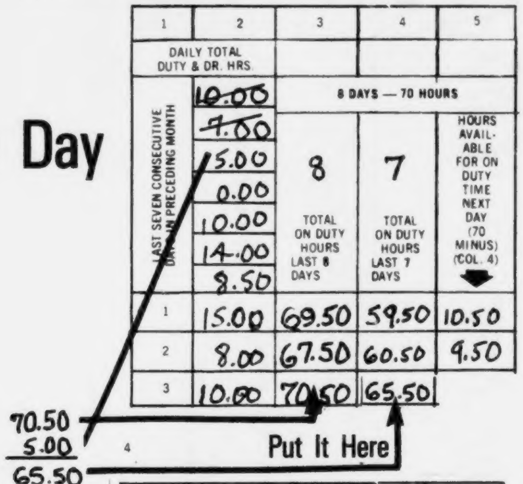
60.50
10.00
70.50

1	2	3	4	5
	DAILY TOTAL DUTY & DR. HRS.			
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH	~~10.00~~ ~~7.00~~ 5.00 0.00 10.00 14.00 8.50	8 DAYS — 70 HOURS		
		8 TOTAL ON DUTY HOURS LAST 8 DAYS	7 TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ▼
1	15.00	69.50	59.50	10.50
2	8.00	67.50	60.50	9.50
3	10.00	70.50		
4				

Put It Here

Step 2

Subtract From 7th or 8th Day



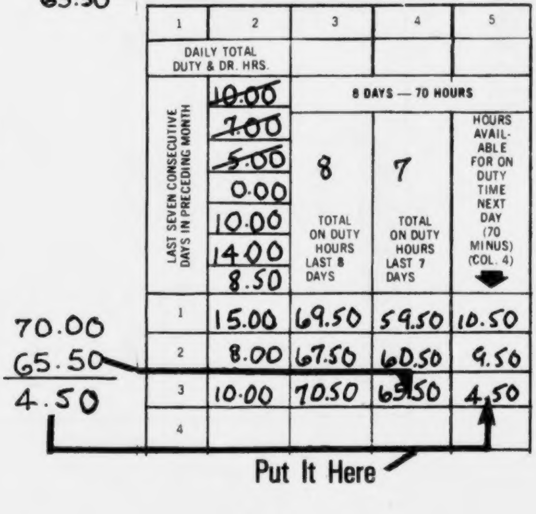
1	2	3	4	5
	DAILY TOTAL DUTY & DR. HRS.			
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH	~~10.00~~ ~~7.00~~ ~~5.00~~ 0.00 10.00 14.00 8.50	8 DAYS — 70 HOURS		
		8 TOTAL ON DUTY HOURS LAST 8 DAYS	7 TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ▼
1	15.00	69.50	59.50	10.50
2	8.00	67.50	60.50	9.50
3	10.00	70.50	65.50	
4				

70.50
5.00
65.50

Put It Here

Step 3

Subtract From 60 or 70



1	2	3	4	5
	DAILY TOTAL DUTY & DR. HRS.			
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH	~~10.00~~ ~~7.00~~ ~~5.00~~ 0.00 10.00 14.00 8.50	8 DAYS — 70 HOURS		
		8 TOTAL ON DUTY HOURS LAST 8 DAYS	7 TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ▼
1	15.00	69.50	59.50	10.50
2	8.00	67.50	60.50	9.50
3	10.00	70.50	65.50	4.50
4				

70.00
65.50
4.50

Put It Here

Visual 10

Answer Key to 60 Hour Example

MARCH 25 – MARCH 31

1	2	3	4	5
LAST SIX CONSECUTIVE DAYS IN PRECEDING MONTH	DAILY TOTAL DUTY & DRIVING HOURS	7 DAYS — 60 HOURS		
	0	TOTAL ON DUTY HOURS LAST 7 DAYS	44½ TOTAL ON DUTY HOURS LAST 6 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (60 MINUS) (COL. 4) ⬇
	9			
	8			
	10½			
	8			
	9			
1	8	52½	52½	7½
2	6	58½	49½	11½
3	0	49½	41½	19½
4	0	41½	31	29
5	10	41	33	27
6	8¼	41¼	32¼	27¾
7	12	44¼	36¼	23¾

Visual 11

Answer Key to 70 Hour Example

MARCH 25 - MARCH 31

1	2	3	4	5
DAILY TOTAL DUTY & DR. HRS.				
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH	8	**8 DAYS — 70 HOURS**		
	0	TOTAL ON DUTY HOURS LAST **8** DAYS	62½ TOTAL ON DUTY HOURS LAST **7** DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ⬇
	9			
	8			
	10½			
	8			
	9			
1	8	60½	52½	17½
2	10	62½	62½	7½
3	0	62½	53½	16½
4	0	53½	45½	24½
5	10	55½	45	25
6	8¼	53¼	45¼	24¾
7	12	57¼	48¼	21¾

LESSON 2 COMPLYING WITH THE HOURS OF SERVICE REGULATIONS (CLASSROOM)

Overview

Time Allotted: 1 hour 45 minutes

Prerequisites: Unit 5.3, Lesson 1

Purpose:

The purpose of this lesson is to take a more detailed look at the Hours of Service Regulations including the driver's multi-day logs and interpretations of driver status in routine situations, extension of driving time, logging sleeper berth time, key exceptions to the hours of service regulations, etc. Following that detailed look, is a discussion of the criteria for maintaining current and accurate logs and the penalties associated with failure to comply. The lesson is summarized via a discussion of a U.S.D.O.T. accident report in which fatigue and falsified logs played the major role. This discussion is included to reinforce the relationship between the Hours of Service Regulations and public safety.

Materials

Instructional Aids

Visuals 1 - 12

Student Material

Current copy of the Federal Motor Carrier Safety Regulations, Part 395 - Hours of Service of Drivers

Exerpt from U.S. Department of Transportation's Official Accident Report, in Unit 5.3 of Student Manual

Instructor Material

Current copy of the Federal Motor Carrier Safety Regulations, Parts 390-397 (latest issue is dated October 31, 1983 on cover and is updated annually)

Exerpt from U.S. Department of Transportation's Official Accident Report (reprinted in the lesson)

Samples of the various types of the newer Driver's Multi-day log forms

Content

Activity or Topic	Approximate Time
1. INTERPRETATIONS OF HOURS OF SERVICE REGULATIONS FOR ROUTINE SITUATIONS	10 minutes
2. EXTENDING DRIVING TIME	15 minutes
3. USING SLEEPER BERTH TIME	15 minutes
4. EXCEPTIONS TO HOURS OF SERVICE REGULATIONS	10 minutes
5. DRIVER'S MULTI-DAY LOGS	10 minutes
6. MAINTAINING GOOD LOGS AND AVOIDING VIOLATIONS	22 minutes
7. CLASS DISCUSSION	23 minutes
	1 hour 45 minutes

1. INTERPRETATION OF HOURS OF SERVICE REGULATIONS FOR ROUTINE SITUATIONS (10 MINUTES)

NOTE: Once students have gone over the basic information in Lesson 1, you will now present more detailed information on the Hours of Service Regulations and answer student questions. Students cannot become "experts" on the regulations at this time, but there are some key regulations that should be discussed.

Visual 1 Interpretations for Routine Situations

Hours of Service Regulations: Detailed Information

- Drivers are required to know and comply with regulations in Section 395 of FMCSR
- Regulations can be complex and subject to interpretation
- Following information includes details for situations which may likely be encountered in normal driving career

Routine Situations

- Enroute meals and certain travel time can be recorded as on-duty or off-duty depending on certain circumstances
- Meals Enroute (395.2a)
  - Usually logged as on-duty, not driving
  - Can be logged as off-duty if four conditions are met
    - Driver relieved for a specific amount of time to ensure proper rest, e.g., must be more than 10 minutes
    - Driver has written instructions from his carrier informing him that he is relieved of responsibility and specifying time, e.g., 30 minutes, one hour, etc.
    - During the stop, the driver is free to do the things he wants, so long as there is no violation of FMCSR, e.g., no drinking
    - If all of above four conditions are met, enroute meal time can be logged as off-duty rather than on-duty, not driving

    - Rules state driver must be responsible for certain types of hazardous materials cargo at all times
    - Cannot be "off-duty" during enroute meals under these conditions

NOTE: Ask students to read Section 395.2a of the Federal Motor Carrier Safety Regulations. Discuss and answer questions.

- Travel Time (395.7)
  - When a driver is traveling at the direction of his/her supervisor, but not driving he/she is on travel time
  - Travel time can be logged as off-duty if following condition is met:
  - Driver given 8 hours consecutive rest upon arrival at his/her destination

Otherwise, must be logged as driving time

NOTE: Ask students to read Section 395.7 of the Federal Motor Carrier Safety Regulations. Discuss and answer questions.

2. EXTENDING DRIVING TIME (15 minutes)

Driving time can be extended under certain adverse and emergency conditions

Visual 2 Extending Driving Time

Adverse Conditions (395.10)

Driving time may be extended 2 hours because of adverse conditions

Definition of adverse conditions

Snow, sleet, ice covered roads, unusually heavy traffic

Not accident, breakdown, or heavy traffic due to rush hour

Conditions must not have been able to be anticipated

If any of above conditions were apparent to driver or dispatcher before the trip, it cannot be used as reason for extending driving time, e.g., weather reports informed of snow covered roads, long traffic backups due to accidents, etc.

If adverse conditions encountered (and were not apparent at beginning of trip)

Driver may drive 2 additional hours to reach destination or to reach place of safety and security for his cargo

May not drive more than 12 hours after 8 hours rest or after 15 hours on duty

Exception--Alaskan drivers may drive to destination if adverse conditions encountered

NOTE: Ask students to read Section 395.10 of Part 395 of the Federal Motor Carrier Safety Regulations. Discuss and answer questions.

Emergency Conditions (395.11)

In case of emergency, driver may be relieved from hours of service restrictions, e.g., may complete a run if such a run could have been completed under normal circumstances

Cannot use "emergency conditions" because of delayed run, breakdown or accident

If real emergency occurs, driver must note the situation on daily log to explain apparent violations of driving and on-duty time restrictions

NOTE: Ask students to read Section 395.11 of Part 395 of the Federal Motor Carrier Safety Regulations. Discuss and answer questions.

Rules and Exceptions Related to On-Duty Rule

7-day Statement

Drivers who are employed for the first time or who are intermittent drivers must supply employer with 7-day statement

- A 7-day statement is a signed written statement which gives the total on-duty hours for previous 7 days
- Purpose--To let carrier know how much on-duty time is available to driver without violating 60- or 70-hour rule

Extension of 60-hour and 70-hour Rule

- 60-and 70-hour rules can be extended due to recent DOT regulations
- Driver can work beyond 60-hour or 70 hours if required by carrier under certain conditions

EXAMPLE: Driver shows up for work with 1/2 hour eligible work time left

- Carrier wants him to work on dock beyond 60- or 70-hour limitation
- Can complete the assignment
- Must then return and get 8 hours consecutive rest to get back into compliance with driving and on-duty rules
- Under no circumstances will driver be allowed to drive beyond 60- or 70-hour limitation
  - Extension is similar to 15-hour rule
  - Can remain on duty if required, but cannot drive

3. USING SLEEPER BERTH TIME (15 minutes)

Visual 3 Rules and Examples for Logging Sleeper Berth Time

Rules for Using and Logging Sleeper Berth Time

Basic Rules

- Time must actually be spent in sleeper berth
  - Napping or resting in co-driver or relief driver seat does not count
  - Must be logged as "on-duty, not driving" time

- Sleeper berth time can be combined with legitimate off-duty time to get 8 consecutive hours rest
  - Time must be consecutive to count

EXAMPLE: Drivers spends 2 hours off duty at rest stop, then goes into sleeper berth for 6 hours

- Equals 8 hours consecutive hours of rest and driver can then drive for 10 hours

- Sleeper berth time can be split to obtain 8 hours rest
  - Two basic conditions
    - Must be split into two time periods
    - Each period must be minimum of 2 hours
  - Example of splitting sleeper berth time which counts for 8 hours rest
    - 2 hours sleeper berth time, 4 hours driving, 6 hours sleeper berth time
    - Counts as 8 hours rest
    - Driver can drive for 6 more hours and get back into sleeper berth or after driving 6 hours can rest 8 hours and drive 10 more hours
  - Examples of splitting sleeper berth time which does not count towards 8 hours rest

EXAMPLE 1: One hour sleeper berth time, following by 4 hours driving and then 7 hours in sleeper berth

Does not count towards 8 hours rest because one of the time periods was less than 2 hours

EXAMPLE 2: 2 hours sleeper berth time, 4 hours driving, 2 hours sleeper berth time, 3 hours driving, 4 hours sleeper berth time

Total sleeper berth time equals 8 hours but does not count because it was split into three time periods

Splitting Sleeper Berth Time in One Person Operation

When splitting sleeper berth time, 10-hour and 15-hour rules still apply

Must not drive more than 10 hours

Must not drive after 15 hours on duty in day

Steps to Follow

Set up time interval and stick with it through trip or at least through next period of 10 hours driving

EXAMPLE: 4 hours sleeper berth, 5 hours driving, 4 hours sleeper berth, 5 hours driving, etc. If pattern stopped here, the driver has met conditions of 8 hours rest and 10 hours driving, e.g., since sleeper berth time was split into 2 periods only, driving time is also split into 2 periods

Driver can continue pattern, or return to 8 full hours rest followed by 10 hours driving, etc.

Splitting Sleeper Berth Time in Two Person Operation

Same basic steps as one person operation, but more planning and coordination required

Two drivers need to keep track of hours available to drive and coordinate their schedules

EXAMPLE: Driver A--Sleeper berth 5 hours, drive 3 hours, sleeper berth 3 hours, drive 5 hours

Driver B--Drive 5 hours, sleeper berth 3 hours, drive 3 hours, sleeper berth 5 hours

Each driver has obtained required rest and not exceeded legal driving time

By using this method, actual driving time is extended and both drivers remain with legal limits of Federal Motor Carrier Safety Regulations, e.g., remains within letter and spirit of law as each driver gets adequate rest and long haul can be accomplished quicker

NOTE: Ask students to read Section 395.3(3a). Answer questions.

Recap

Sleeper berth time can be combined consecutively with legitimate time off to obtain 8 hours consecutive rest

Sleeper berth time can be split if done in two periods with a minimum of two hours per period

10 hours and 15 hour rule still apply when sleeper berth time split

Driver should set up time interval patterns and stick with when splitting sleeper berth time

Remember sleeper berth time may not be covered with off-duty time to accomulate 8-hours of off-duty in 2 periods

4. EXCEPTIONS TO HOURS OF SERVICE REGULATIONS (15 minutes)

Many exceptions to Hours of Service Rules and log keeping requirements

Must rely on FMCSR 395 for most of these exceptions

Variety of Exceptions and Exemptions From Hours of Service Regulations

Key Exceptions Which Were Explained in Lesson 1

- Extra two hours driving time for unexpected weather or condtions, e.g., unexpected storm on regular run
- Logging meal time as off-duty time if company gives written permission

Visual 4 Key Exceptions to Hours of Service Regulations

Key Exceptions

NOTE: Stress that students must rely on reference material for details and not recall on these exceptions)

- Exempt from rules by type of truck
    - Lightweight mail trucks contracting to Postal Service (395.1)
    - 2 axle vehicle, less than 10,000 lbs. (395.3)

- Exceptions to rules by type of driver:
    - Driver salesmen exempt from the weekly limitations if activity limited to 100 mile radius (395.2)
    - Specially trained oil rig drivers
        - On duty time defined differently
        - Waiting and resting time at oil field/gas fields not counted (395.2)
    - All drivers exempt from log keeping requirements under certain conditions
        - 100-mile radius
        - 12-hour shift
        - Must return to home base
        - Company must document (395.8)
    - Exemptions due to conditions:
        - Christmas rule--December 11-25, drivers delivering retail exempt (395.3)
        - Natural disasters and emergencies (395.11 and 395.12)

Special rules for Alaska drivers
15-hour rule instead of 10-hour rule
20-hour rule instead of 15-hour rule
On duty time extended to
70 hours for 6-day period
80 hours for 7-day period (395.3)

State Regulations

Some states have stricter hours of service regulations than FMCSR 395, e.g., definitions of sleeper berth time

Driver is responsible for knowing and complying with these regulations

Discussion of Exceptions and State Rules Which Most Frequently Apply

Instructions

(End this part of the lesson by presenting and discussing exceptions, if any, in FMCSR 395 which most apply to your students, e.g., if in Alaska, discuss and answer question in more detail about rules applying to Alaska.

Present, discuss and answer questions about State regulations in your State which apply to the Hours of Service Regulations and log-keeping requirements.)

5. Driver's Multi-day Logs (5 minutes)

The Federal Motor Carrier Safety Regulations have been changed to provide motor carriers a means of combining several logs onto one page or to combine the log with other fleet forms used by its drivers.

Visual 5 Driver's Log Form MCS 139

Logs discussed so far, are Form Number MCS 59

Driver's multi-day log form is known as MCS 139 and when combined on a single sheet of paper can be used to get up to 8 consecutive days one page of paper.

Visual 6 and 7 Driver's 8-Day Log

This is accomplished by using Form MCS 139 at the top of the page and then following it with 7 of the MCS 139A Forms (3 on the front and four on the reverse side).

Multi-day Log can be used to record any number of days from one to a maximum of eight (as shown in visuals)

All of regulations covering log entries, etc. apply when using the multi-day log in same way as discussed for MCS 59 Form.

If your employer uses multi-day logs, be sure to review instructions with your supervisor.

6. MAINTAINING GOOD LOGS AND AVOIDING VIOLATIONS (15 minutes)

Maintaining Accurate and Current Logs

Knowledge of Hours of Service Regulations Reflected in How Well Drivers Maintain Their Logbooks

Drivers job to maintain current, neat accurate log
Log must be treated as legal document, e.g., don't attempt to falsify it
Must account for 24 hours each day, day in, day out while employed by interstate carrier
If off duty for two or more consecutive days may maintain hours on one log by entering appropriate dates in date section

Visual 8 Types of Errors and Violations

Errors in Maintaining Logs

Reasons for Errors

Not maintaining current logs, e.g., by not keeping up-to-date with last change of duty, driver will guess and make incorrect entries
Mistakes in arithmetic, i.e., will lead to violations of 10-hour and 15-hour rule, on-duty rule
Failure to recognize when in violation, i.e., driver violates 60-hour rule but management or driver does not recognize it

Type of Errors

Log not current
Log illegible, not neat or incomplete
Log shows hours of service violation
    If driver in violation, should explain on log
    Do not falsify to attempt to cover up violation, e.g., if driver forced into hours of service violation because of conditions or error, not as serious as attempting to falsify logs

Log Falsification

What Federal/State inspectors look for when inspecting logs
    Logs are periodically inspected by Federal, State officials at weighing stations and during periodic commercial vehicle roadside safety inspections.
    Inspectors look for violations of safety regulations.
        Remember--Driver must keep log book for previous consecutive period with their own copies of logs therein and the inspectors can audit it or inspect it on demand

What They Look For:

Logs not current, or sloppy, easy to spot.
Logs with violations or exceptions must be explained.
Most serious violations, log falsification.

DOT 450 Mile Rule

Hours-to-miles driven ratio can indicate violation.
DOT suspects any situation with over 450 miles in 10 hours, e.g., because of 55 mph law hard to average more than 450 miles in 10 hours.

Other Indications of Falsified Logs

Exact legal pattern followed, i.e. 10 hours off, 8 hours on.
Mileage is rounded off, e.g., 400 miles, 300 miles
Logs do not comply with other records, e.g., can be checked against dispatch time, etc.

EXAMPLE: Logs of drivers involved in accidents always investigated.
Driver in accident because of fatigue.
Attempts to falsify logs to cover up extra driving time.
Logs can be checked against company records, dispatch time, shipping records, toll receipts, hours versus actual mileage driven.
Result: Severe penalties for both accident and log falsification.

Student Discussion: Logs With Errors

Present and discuss examples of logs with errors.

Visuals 9, 10, and 11

Ask students to comment and discuss each example.

Visual 9 Example Log 1

EXAMPLE 1: Illegible and Incomplete Log.

Comment: Log is illegible, must be done over. Company will reject, inspectors will suspect falsification.

Visual 10 Example Log 2

EXAMPLE 2: Log Shows Hours of Service Violation

Comment: Did not split sleeper berth time correctly. Did not get full 8-hour rest and is in violation of 10-hour driving rule. Must explain why.

Visual 11 Example Log 3

EXAMPLE 3: Log Falsification

Comment: Miles and hours pattern follow rules exactly, e.g., 8 hours, 10 hours driving. Miles-to-hours ratio unrealistic, averaged 52.3 miles per hour.

Visual 12 List of Penalties for Hours of Service Violations

Penalties for Violations

Driver and/or his company subject to penalties for violating hours of service regulations as indicated by logs.

- Out of service:
  - For missing, not current logs.
  - Violations which put driver over hours and are not explained.
- Severe fines and penalties.
  - For falsifying logs.
  - Can lose right to drive and job.
- Subject to State penalties:
  - If logs show violation in speed law.
  - Can be prosecuted.
- Safety penalty most important.
  - Logs are to protect driver and public.
  - Fatigued driver more likely to be involved in accident.

NOTE: Ask students to read Section 395.13 of Part 395 of the Federal Motor Carrier Safety Regulations. Discuss and answer questions.

7. CLASS DISCUSSION (23 minutes)

Classroom information in Hours of Service Regulations summarized by a discussion of logs and safety.

Directions

Ask students to read "Excerpt from DOT Accident Report" for "Discussion" in Unit 5.3 of Student Manual. It is reprinted on the pages which follow for your convenience

Questions for Discussion

What was the major cause of the accident?
How were the driver logs discovered to be falsified?
What is the importance of the Hours of Service Regulations and accurate maintenance of logs to drive safely? safety of the public?

EXCERPT FROM U.S. DEPARTMENT OF TRANSPORTATION
OFFICIAL ACCIDENT REPORT FOR DISCUSSION

MOTOR CARRIER ACCIDENT INVESTIGATION

REPORT NO. 74-2

ACCIDENT - MARCH 28, 1974 - SOUTH BOSTON, VIRGINIA

SYNOPSIS

DATE, TIME:	March 28, 1974, 3:40 p.m.
TYPE OF ACCIDENT:	Rear-end collision
LOCATION:	Route 304, near South Boston, Virginia
VEHICLES INVOLVED:	Tractor-trailer combination operated by ________ Company of Pittsburgh, Pennsylvania (hereinafter referred to as the "truck"). School bus operated by the Halifax County Virginia School Board (hereinafter referred to as the "school bus"). Two private automobiles (hereinafter referred to as the "Chevrolet" and the "Ford").
ABSTRACT:	Two cars stopped behind school bus discharging passengers. The truck struck and overrode the Chevrolet from behind, shoving it under the school bus which overturned and rolled onto its roof. The truck then collided with the Ford.
RESULTS:	Two fatalities, 37 injuries, and $65,000 property damage.
PROBABLE CAUSE:	Truck driver inattentive, fatigued, traveling at excessive speed.

RESULTS OF THE ACCIDENT

The truck driver's only statement regarding the accident was: "I was coming down the hill and I just didn't see them in time." This statement was given to the investigating officer and to the company official to whom he reported the accident by telephone.

As a result of the accident, two children in the Chevrolet, one in the back seat, the other in the right front seat, were killed instantly. The child occupying the rear seat struck the steering column head first. The driver was somehow pushed to the left of the steering column and received only minor injuries. It was not determined whether any of the Chevrolet passengers were wearing seat belts.

Of the 42 children in the school bus (ages 6 to 14), 36 were injured but only 3 required hospitalization. Neither the Ford driver or the truck driver were injured. Both were wearing seat belts.

EVENTS PRECEDING THE ACCIDENT

Comparison of the driver's logs, toll receipts, and plant arrival and departure times for the two days preceding the accident showed conclusively that the driver was falsifying his daily logs. His last eight days of logs indicated a pattern of exactly 8 hours off duty and exactly 10 hours driving, which coincides with Federal Motor Carrier Safety Regulations maximum hours of service limitations.

Reconstruction of the driver's probable activities for 2 days prior to the accident revealed the following:

He reported to the carrier's Greensboro, North Carolina terminal, at 12:30 a.m., March 27, and was on duty, not driving until 1 a.m., at which time he departed for Edison, New Jersey. According to his daily log, the driver arrived at Edison, 492 miles away, at 11 a.m., and was off duty until 7 p.m., that evening. The terminal supervisor, however, reported that the driver arrived at the plant between 4 p.m., and 5 p.m., where he unhooked one trailer and hooked up another. A notation on the Edison terminal dispatch sheets shows that the driver called from Ashland, Virginia, at 10 a.m. that morning to notify them of his location. In effect the driver claimed a 9-1/2 hour trip, but actually made the 492-mile run in 15 hours.

The driver's route from Greensboro, North Carolina, to Edison, New Jersey, takes him past his home in Reidsville, North Carolina, 25 miles from the terminal. He may very well have stopped in Reidsville, and not entered it on his log for obvious reasons. A stop of 4 or 5 hours at home could have interrupted his schedule enough so that he could not take the required off-duty time in Edison in order to meet his next dispatch.

The phone call from Ashland at 10 a.m., and toll receipts from Perryville, Maryland, at 1:30 p.m., and the Delaware Memorial Bridge at 2:16 p.m., reinforce the hypothesis that he stopped several hours during the early portion of his trip.

Dispatch records at the carrier's Essington facility, which is 59 miles from Edison, show that the driver was "In" at 7:22 p.m., March 27, and "Out" at 2:27 a.m., March 28. His daily log shows him "Off Duty" at the Essington plant from 8:30 p.m., March 27 until 4:30 a.m., March 28. According to plant records, his actual time at the plant, which would include some "on duty, not driving" time was 7 hours and 49 minutes.

One final toll receipt from the Baltimore Harbor Tunnel at 7:04 a.m., suggests that the driver took 4 hours and 31 minutes to make the 96 mile return trip from Essington to Baltimore. The indication is that the driver either stopped along the way or did not leave Essington for another 2-1/2 hours.

Betwen 7:04 a.m., when the driver went through the Baltimore Harbor Tunnel, and 3:40 p.m., when the accident occurred, the driver covered 268 miles. At normal driving speeds, this would require no more than 5-1/2 hours, which suggests that he may have taken a 2-hour break somewhere in this 8-1/2 hours preceding the accident.

The resultant picture is that while the driver showed two 8-hour breaks in his daily logs, he actually only took one break of approximately 7 hours and several smaller breaks dispersed over the two-day period.

The evidence shows hours of service violations of Section 395.3 (a), driving more than 10 hours without 8 consecutive hours off duty, and log falsification.

SUMMARY AND CONCLUSIONS

This accident took the lives of two people and had the potential for much greater severity. It was caused by the driver's inattentiveness which very likely stemmed from general fatigue and road weariness. He was familiar with the area and most probably had knowledge that school buses stopped on the main roadway while discharging passengers.

Analysis of the driver's daily logs reveals that he was falsifying logs in order to show that he was within the hours of service limitations while, in actuality, he was driving beyond prescribed hours of service limits. His logs fall into the pattern of exactly 8 hours off duty and exactly 10 hours driving, which coincides with Federal Motor Carrier Safety Regulation's maximum hours of service limitations. According to the driver's logs, he drove 917 miles in a little over 18 hours, for an average speed of 51 miles per hour.

Interpretations of Routine Situations

395.2a Meals En Route

Driver Is Off Duty if Four Conditions Have Been Met

- Must Be Relieved of Responsibility for Vehicle/Cargo
- Must Be for Specific Time Period, e.g. at Least 10 Minutes
- Must Have Written Instructions From Carrier
- Must Be Free to Do as Pleases While on Break
  - But Can't Violate Other Regulations, e.g. No Drinking

395.7 Travel Time

- Traveling for the Motor Carrier With No Other Responsibilities, This May Be Logged as Off-Duty Time Provided:
  - Driver is Given 8 Hours Consecutive Rest Upon Arrival at Destination
  - Otherwise it Must Be Logged as On-Duty (Not Driving) Time

Extending Driving Time

395.10 Adverse Conditions

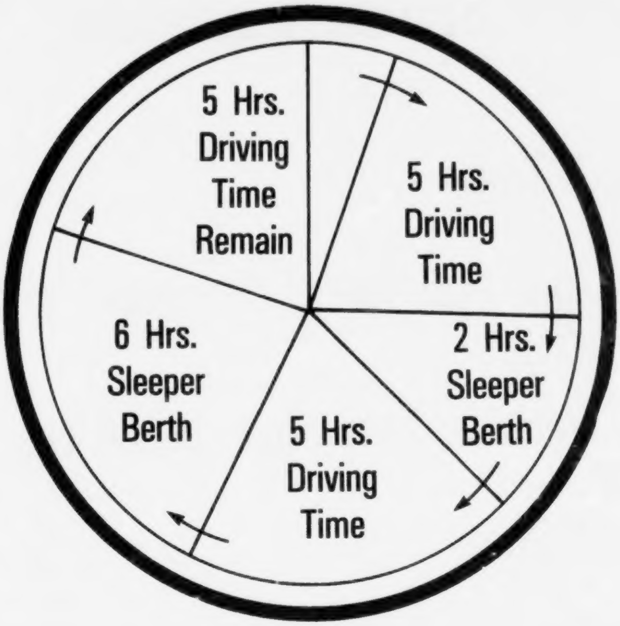
- Can Extend Driving Time Two Extra Hours
- Defintion
  - Snow, Sleet, Ice, Etc. Not Accident or Breakdown
  - Conditions Must Not Have Been Anticipated
- Conditions
  - Drive Two Extra Hours to Reach Destination or Place of Safety
  - Cannot Drive More Than 12 Hours After 8 Hours Rest
  - Cannot Drive After 15 Hours On Duty
  - Must Explain Situation in Remarks Section of Log

395.11 Emergency Conditions

- Relieved From Hours of Service Regulations in Case of Emergency
- Defintion
  - An UnForeseen Circumstance, Preventing Completion of a Run That Could Have Been Legally Completed Under Normal Circumstances
- Conditions
  - Relieved From Hours of Service Regulations
  - Explain Situation in Remarks Section of Log

Visual 3

Sleeper Berth Time


5 Hrs. Driving Time Remain
5 Hrs. Driving Time
2 Hrs. Sleeper Berth
5 Hrs. Driving Time
6 Hrs. Sleeper Berth

Drive for Part of Your 10 Hours. Then Use the Berth for at Least 2 Hours. Driv the Rest of Your 10 Hours and Go Into the Berth Again to Finish Your 8 Hours Off Duty Before Driving Again.

5 Hrs. Driving Time	2 Hrs. Sleeper Berth	5 Hrs. Driving Time	6 Hrs. Sleeper Berth	5 Hrs. Driving Time Remaining

5 Hours in Between
Sleeper Periods

10 Hours Allowed
Driving Time

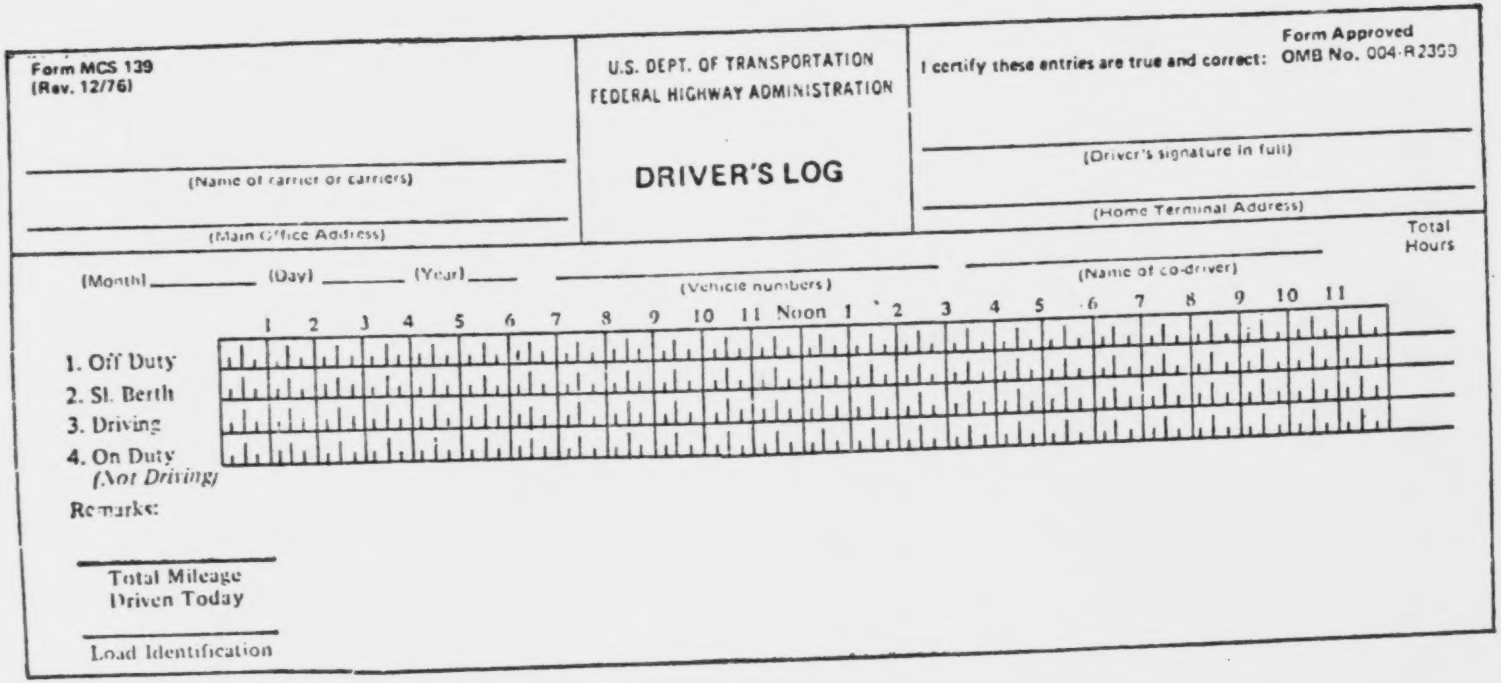
5 Hours Remaining
to Drive

Visual 4

Examples of Exceptions to Hours of Service Regulations

- By Type of Truck
  - Lightweight Mail Truck, Contracted to Postal Service (345.1)
  - 2 Axle Vehicles, Less Than 10,000 Lbs. (395.3)
- By Type of Driver
  - Driver/Salesman Exemption (395.2)
  - Special Rules for Trained Oil Rig Drivers (395.2)
  - All Drivers (100 Mile Radius, 12 Hours Shifts, Return to Home Base) (395.8)
- By Conditions
  - Christmas Rule (395.3)
  - Adverse Conditions and Emergencies (395.10/11)
- Special On Duty Rules for Alaska Drivers (395.3)

Driver's Multi-Day Log Form MCS 139



Form MCS 139
(Rev. 12/76)

(Name of carrier or carriers)

(Main Office Address)

U.S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

DRIVER'S LOG

Form Approved
I certify these entries are true and correct: OMB No. 004-R2353

(Driver's signature in full)

(Home Terminal Address)

(Month) ______ (Day) ______ (Year) ______ (Vehicle numbers) ______ (Name of co-driver) ______

1
2
3
4
5
6
7
8
9
10
11
Noon
1
2
3
4
5
6
7
8
9
10
11
Total Hours

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty *(Not Driving)*

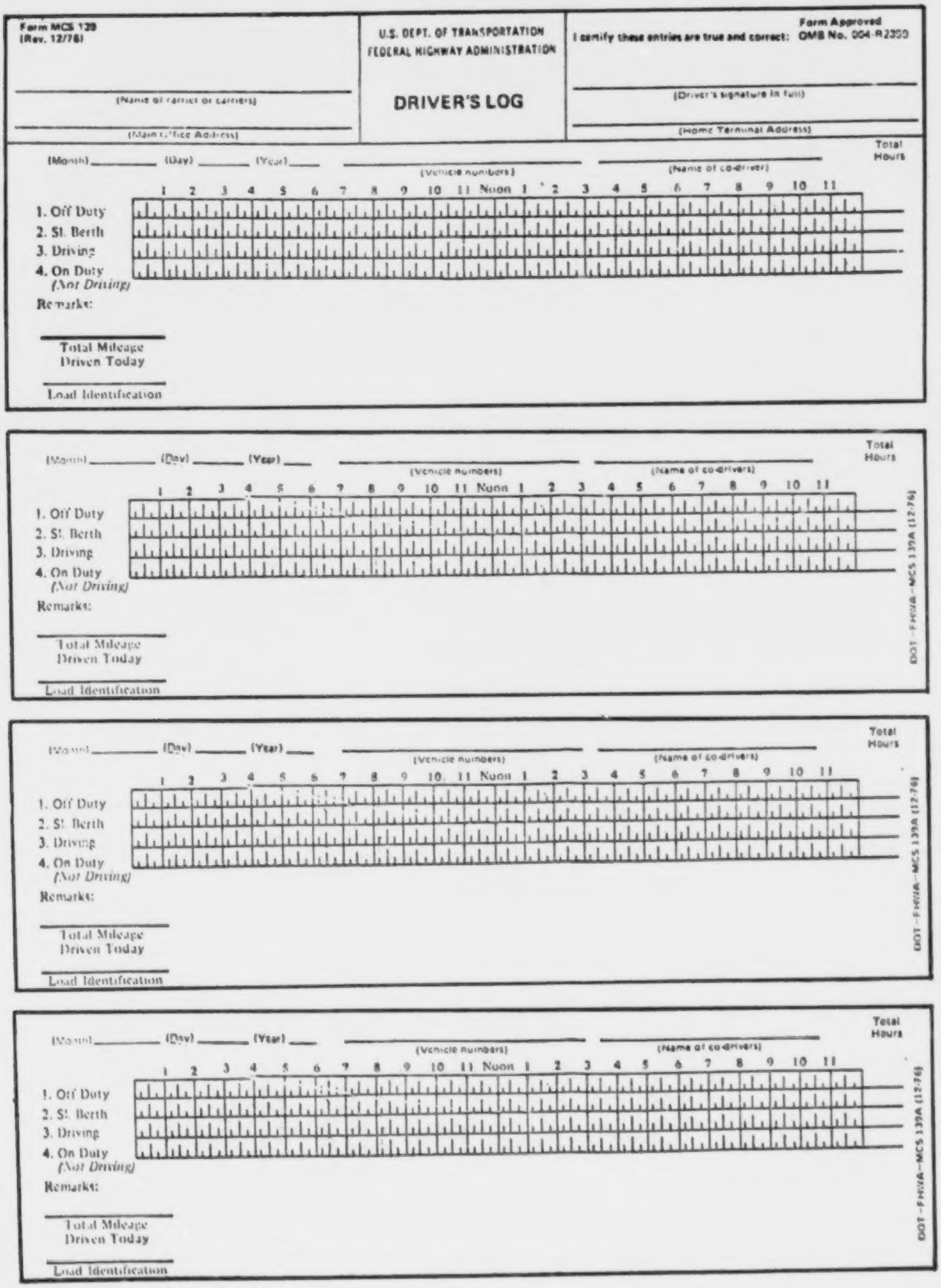
Remarks:

Total Mileage Driven Today

Load Identification

Visual 6

Driver's 8 Day Log (Front)



Form MCS 139
(Rev. 12/76)

U.S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

DRIVER'S LOG

I certify these entries are true and correct:

Form Approved
OMB No. 004-R2300

(Name of carrier or carriers)

(Main Office Address)

(Driver's signature in full)

(Home Terminal Address)

(Month) ______ (Day) ______ (Year) ____ ______ (Vehicle numbers) ______ (Name of co-driver) Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty *(Not Driving)*

Remarks:

Total Mileage Driven Today

Load Identification

(Month) ______ (Day) ______ (Year) ____ ______ (Vehicle numbers) ______ (Name of co-drivers) Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty *(Not Driving)*

Remarks:

Total Mileage Driven Today

Load Identification

DOT–FHWA–MCS 139A (12-76)

(Month) ______ (Day) ______ (Year) ____ ______ (Vehicle numbers) ______ (Name of co-drivers) Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty *(Not Driving)*

Remarks:

Total Mileage Driven Today

Load Identification

DOT–FHWA–MCS 139A (12-76)

(Month) ______ (Day) ______ (Year) ____ ______ (Vehicle numbers) ______ (Name of co-drivers) Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty *(Not Driving)*

Remarks:

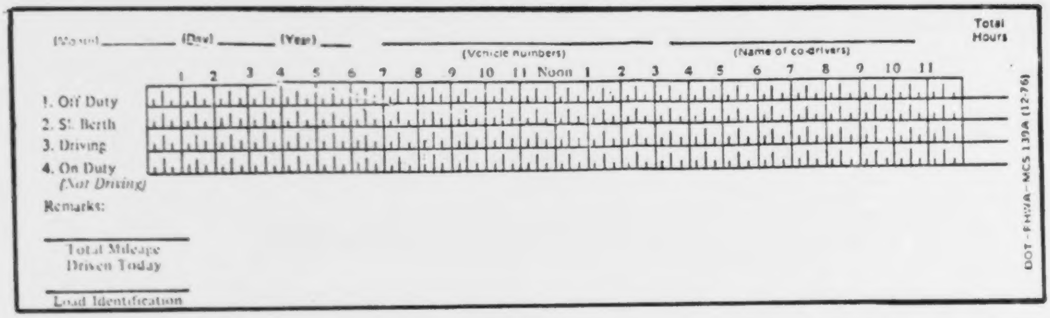
Total Mileage Driven Today

Load Identification

DOT–FHWA–MCS 139A (12-76)

Visual 7

Driver's 8 Day Log (Reverse Side)



(Month) ________ (Day) ______ (Year) ____ ____________________ (Vehicle numbers) ____________________ (Name of co-drivers)

Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

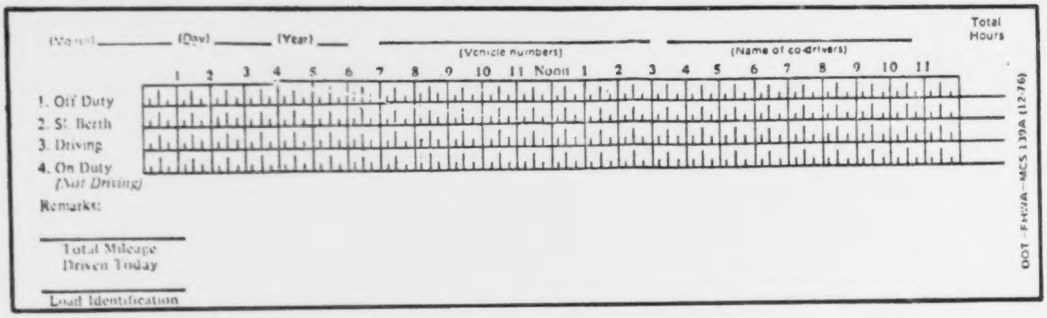
1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty (Not Driving)

Remarks:

Total Mileage Driven Today

Load Identification

DOT-FHWA-MCS 139A (12-76)



(Month) ________ (Day) ______ (Year) ____ ____________________ (Vehicle numbers) ____________________ (Name of co-drivers)

Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

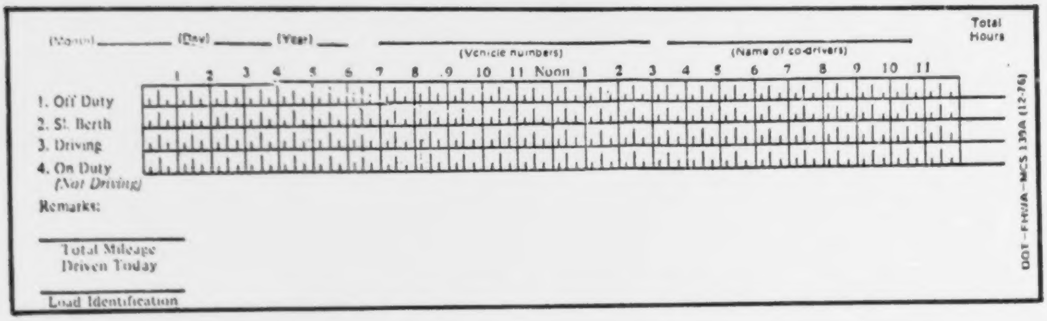
1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty (Not Driving)

Remarks:

Total Mileage Driven Today

Load Identification

DOT-FHWA-MCS 139A (12-76)



(Month) ________ (Day) ______ (Year) ____ ____________________ (Vehicle numbers) ____________________ (Name of co-drivers)

Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

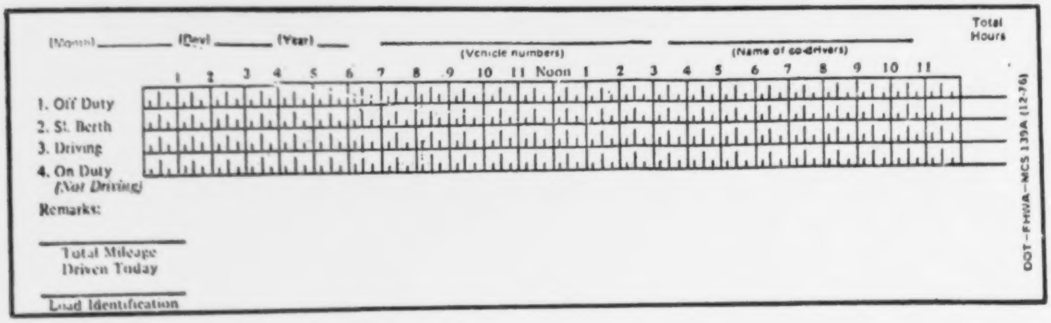
1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty (Not Driving)

Remarks:

Total Mileage Driven Today

Load Identification

DOT-FHWA-MCS 139A (12-76)



(Month) ________ (Day) ______ (Year) ____ ____________________ (Vehicle numbers) ____________________ (Name of co-drivers)

Total Hours

1 2 3 4 5 6 7 8 9 10 11 Noon 1 2 3 4 5 6 7 8 9 10 11

1. Off Duty
2. Sl. Berth
3. Driving
4. On Duty (Not Driving)

Remarks:

Total Mileage Driven Today

Load Identification

DOT-FHWA-MCS 139A (12-76)

Types of Errors and Violations

Most Common Errors

- Not Keeping Log Current to Last Change of Duty
- Not Keeping Track of Hours Available
- Making Mathematical Errors
- Failing to Recognize When in Violation
  - Explain in Remarks
  - Don't Try to Cover It Up

Clues for Log Falsification

- Information Cross Checked With Fleet Records, Fuel Purchase, Etc.
- Mileage Always Neatly Rounded Off
- Exact Legal Pattern, e.g, 8 Off, 10 Driving, Etc.
- Too Many Miles in a Given Day
- Too Short a Time Distance Between Two Points

Example: Log 1

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

May (Month) 1 (Day) 1984 (Year)

(Total mileage today)

426 (Total miles driving today)

Acme Trucking (Name of carrier or carriers)

Boston, Mass. (Main Office Address)

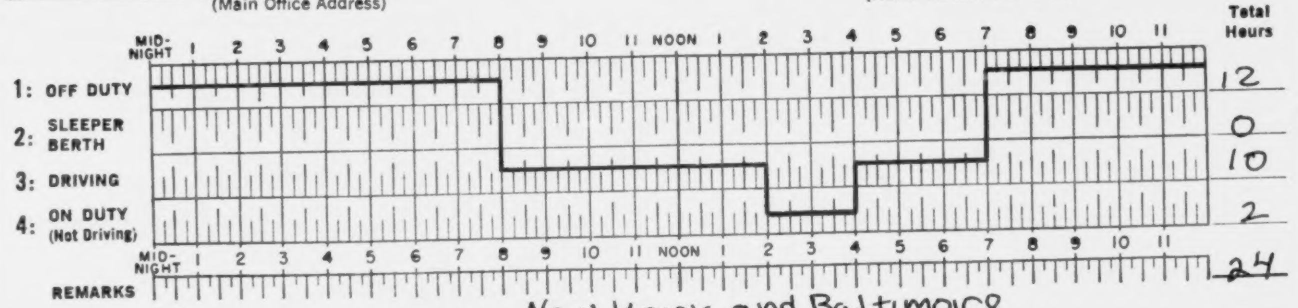
126A-127A Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

John Doe (Driver's signature in full)

(Name of co-driver)

Boston, Mass (Home Terminal Address)



Total Hours	
1: OFF DUTY	12
2: SLEEPER BERTH	0
3: DRIVING	10
4: ON DUTY (Not Driving)	2
	24

REMARKS New York and Baltimore

Manifest No. 1073

Commodity

Shipper

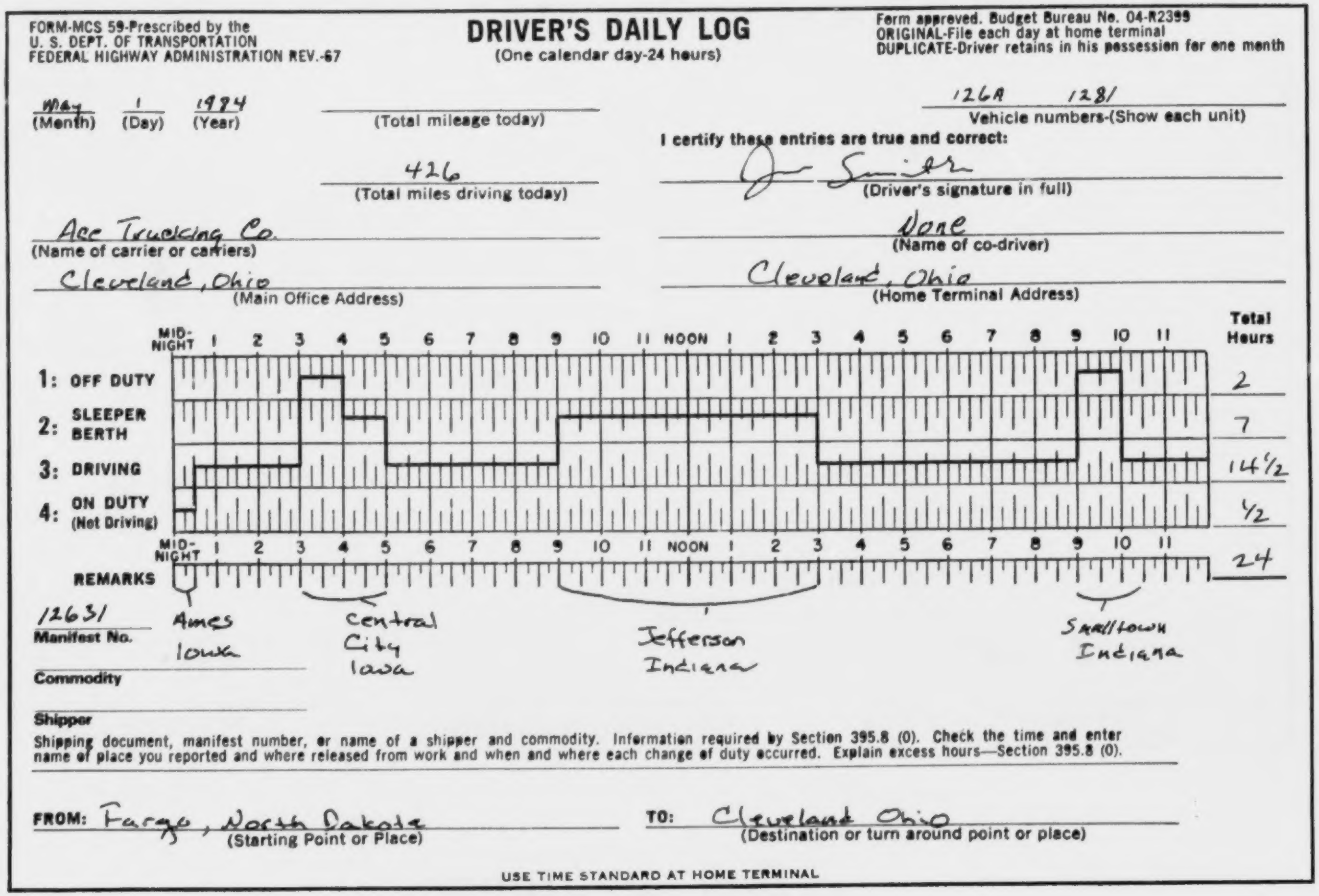
Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: Boston, Mass (Starting Point or Place)

TO: Richmond, Va (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Example: Log 2



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

May (Month) 1 (Day) 1984 (Year)

(Total mileage today)

426 (Total miles driving today)

126A 1281 Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

J Smith (Driver's signature in full)

Ace Trucking Co. (Name of carrier or carriers)

None (Name of co-driver)

Cleveland, Ohio (Main Office Address)

Cleveland, Ohio (Home Terminal Address)

	Total Hours
1: OFF DUTY	2
2: SLEEPER BERTH	7
3: DRIVING	14½
4: ON DUTY (Not Driving)	½
	24

REMARKS

Ames Iowa

Central City Iowa

Jefferson Indiana

Smalltown Indiana

12631
Manifest No.

Commodity

Shipper

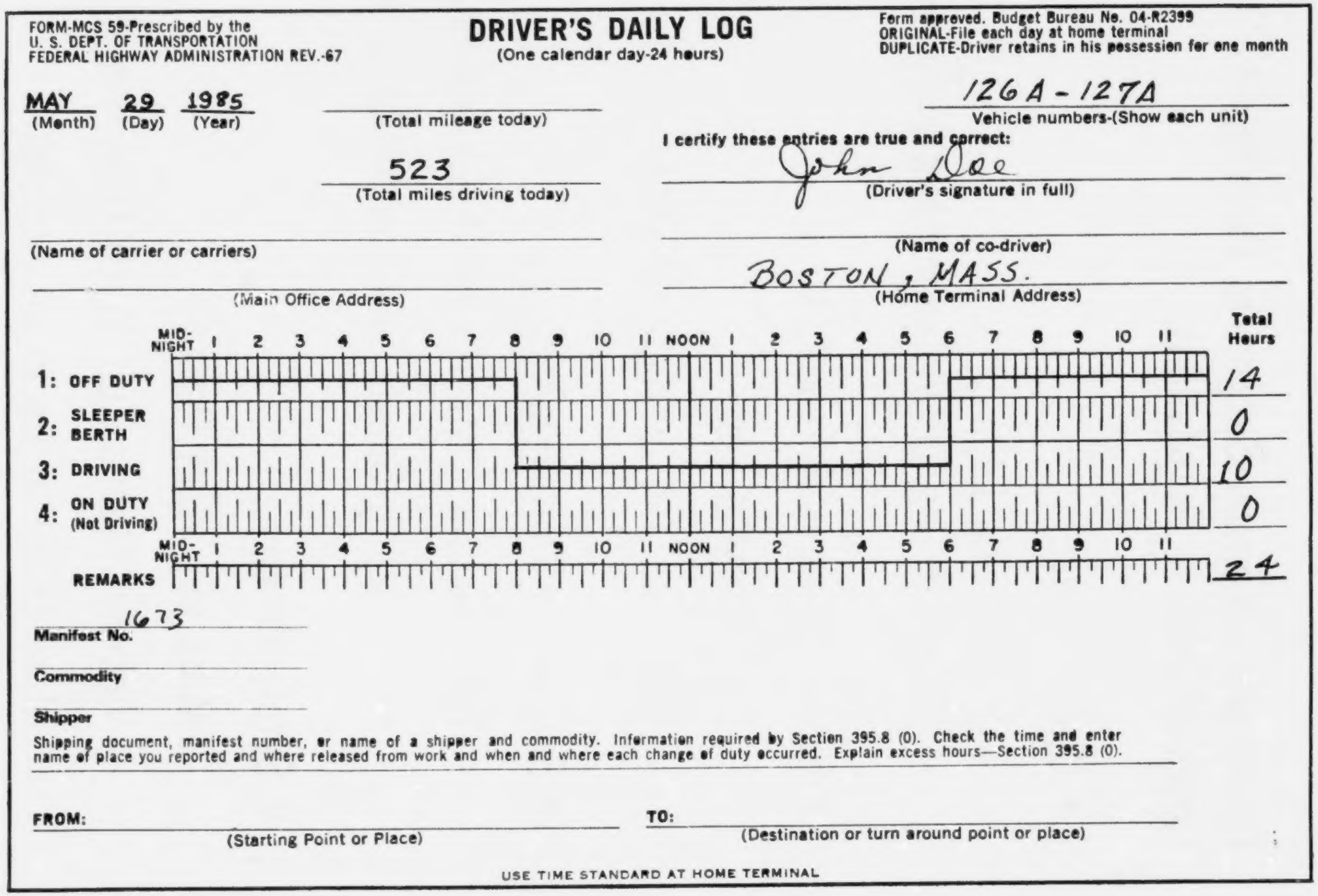
Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: Fargo, North Dakota (Starting Point or Place)

TO: Cleveland Ohio (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Example: Log 3



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 29 (Day) 1985 (Year)

(Total mileage today)

523 (Total miles driving today)

126A - 127A
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:
John Doe
(Driver's signature in full)

(Name of carrier or carriers)

(Name of co-driver)

(Main Office Address)

BOSTON, MASS.
(Home Terminal Address)

	Total Hours
1: OFF DUTY	14
2: SLEEPER BERTH	0
3: DRIVING	10
4: ON DUTY (Not Driving)	0
REMARKS	24

1673
Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: (Starting Point or Place)

TO: (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Penalties for Hours of Service Violations

Driver and Company Subject to Penalties for Violating Hours of Service Regulations.

- Out-of-Service
  - For Missing Logs
  - Hours of Service Violations Not Fully Explained
- Severe Fines and Penalties
  - For Falsifying Logs
  - Can Lose Job or Right to Drive
- Subject to State Penalties
  - For Violating State Hours of Service Regulations
  - For Violating Speed Laws as Indicated by Logs
- Safety Penalty
  - Most Important Penalty
  - Violation Means Too Much Driving and Fatigue
  - More Likely to Be in an Accident

LESSON 3 LOG KEEPING EXERCISE (CLASSROOM)

Overview

Time Allotted: 1 hour 45 minutes

Prerequisites: Unit 5.3, Lesson 2

Purpose:

The purpose of this lesson is to provide students with a log keeping practice. The instructors role is to explain and monitor the log keeping exercise and to give individual feedback and help to each student.

After completion of this unit, students will be required to maintain logs throughout the remainder of the curriculum, or for 30 days whichever comes first (as required by the proposed training standards). However, All driving time, both on the driving range and during street lessons must be logged to provide a permanent record of all student B.T.W. Time.

Materials

Instructional Aids

Visuals 1 - 9

Student Material

Log Keeping Exercises, in Unit 5.3 of Student Manual

At least 7 blank Daily Log forms (for exercises)

One log book recap form (for exercises)

A Driver's Daily Log Book (not to be used in this class) which students will use to record all future school activity

A 6-inch ruler or straight edge for making log entries

Instructor Material

Log Keeping Exercises, in Unit 5.3 of Student Manual (reprinted in this lesson)

Sufficient supply of both the Driver's Daily Log and log recap forms (can be photostatic copies) for all students to complete the class exercises

A new log book and 6 inch ruler for distribution to students at end of this lesson, to be used to record all of their future activities at school

Instructor may prepare transparencies of both the logs and the recaps to aid in reviewing the exercises

Content

Activity or Topic	Approximate Time
1. EXPLANATION OF EXERCISE	5 minutes
2. COMPLETION OF EXERCISE	65 minutes
3. REVIEW OF EXERCISE	35 minutes
4. ADDITIONAL LOG KEEPING PRACTICE	*
	1 hour 45 minutes

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* Students maintain daily log of all their school activities throughout remainder of the course

1. EXPLANATION OF EXERCISE (5 minutes)

Explain Exercise to Students

Ask students to read General Instructions of the "Log Keeping Exercise," Unit 5.3 of Student Manual

Answer questions and clarify information about exercise instructions

Use of references during the exercise
- Students may refer to any background information or examples dating to hours of service regulations or completion of daily logs

Making computations
- Computations should be made in fractional hours (1/2, 3/4), or decimals
- Recommend use of decimals because they are easier to add and subtract

Assistance during the exercise
- Instructor will:
    - Answer questions to explain diary entries or exercise instructions
    - Assist individuals in finding answers related to hours of service regulations or making entries on logs, e.g., will try to help individual clarify problem, will point out proper reference.
    - Assist with computation problems to the extent possible

Time limit
- Sixty-five minutes allowed for completion of exercise.
  Additional time and assistance after class will be allowed for those individuals who cannot finish the exercise in time.

Review of the exercise
- Student who finishes early may have answers reviewed and given appropriate feedback by instructor
- Instructor will then review answers with entire group
- Instructor will collect completed Daily Logs or log book for individual review and feedback

Visual 8 Co-Driver John A. Smith

During Part 2 of the exercise this visual will be projected for students to work from, if classroom lighting problems exist, then give each student a photostatic copy of the cisual to work from.

2. COMPLETION OF EXERCISE (1 hour 5 minutes)

Students Complete Exercise

Students complete the Log Keeping Exercise using the instructions in their manual, the guidelines above and the supplied materials.

Each student should work alone, receiving instructor assistance only if and when required.

Instructor Assistance

During the exercise, the instructor should be on hand to assist individual students.

Answer all questions relating to exercise directions or information in the diary.

Assist students who have questions or problems with regulations, procedures or computations.

Point out where the information is covered in the Student Manual or FMCSR 395.
Ask the student to read reference material to see if it clarifies his problem or question.
Lead the student to clarification of his difficulty by asking him questions.
Provide clues rather than answering directly, (unless there is a serious misunderstanding or failure to comprehend the requirements of hours of service regulations).
Assist with computation problems to the extent possible, i.e., point out careless errors but you cannot teach a student how to add fractions or decimals.

UNIT 5.3 - LOG KEEPING EXERCISES (Reprinted from Student Manual)

This exercise will be completed in class. The instructor will explain the procedures in detail. General instructions are provided below.

General Instructions

Part 1 Solo Driver

In Part 1 of this log-keeping exercise, you are to complete daily logs and a log recap form for a six-day period based on a diary of activities

- Use the information in the diary which follows to complete a daily log for each 24-hour period
- Your carrier is the Benson Trucking Company
- Your home terminal is Chicago, Illinois
- Your carrier is using the 7-day, 60-hour rule
- You have written instructions authorizing four breaks, e.g., you do not have to attend to the vehicle and cargo

The instructor will provide you with sufficient copies of logs to complete the exercise.

You may refer to reference materials about the Hours of Service regulation as you complete this exercise.

When you finish Part 1 of this exercise, continue the Part 2 which follows. Part 2 is a short exercise involving a two-person sleeper operation.

1. First Day's Activity (May 1)

Starting location: Wayland, Texas

You pulled in the night before last at 9 p.m. and have been on layover since then, staying at a local motel. The information below is a recap of your last seven day's activities. Use it to fill out the recap sheet and determine how many on-duty hours you have remaining. Keep a running total of remaining on-duty hours throughout the exercise.

Daily Total Duty and Driving Hours

April 25 - 10 hours
April 26 - 10 hours
April 27 - 15 hours
April 28 - 4 hours
April 29 - 15 hours
April 30 - 0 hours

You are off duty today and have to report to the company's terminal in Wayland tomorrow at 8 a.m.

2. Second Day's Activity (May 2)

Starting location: Wayland, Texas

You get up at 7 a.m. and breakfast at the motel. You report to Operations at 8 a.m. and are assigned Tractor #2311, Trailer #11703. It's a sealed load of miscellaneous dry freight to be hauled to Dallas, Texas.

After a review of the shipping papers and trip instructions and a pretrip, you are ready to be dispatched. The Manifest Number is 12344A and the shipper is Acme Goods.

At 9 a.m., you are dispatched and on the road. You drive four hours straight with just incidental stops to check your tires and stop for lunch at 1 p.m. at a truck stop in Red River, Texas. Company policy says you are off duty during this lunch break that ends at 2 p.m.

You are on the road again at 2 p.m. You arrive at the terminal at 6:45 p.m. By the time you complete your maintenance reports and other paperwork, drop off the trailer, and secure the tractor, it is almost 7:30 p.m. And you are finally off duty. Tonight will be spent at a local motel and tomorrow you will probably pickup another load going north.

A long day's work and 263 miles.

3. Third Day's Activity (May 3)

Starting location: Dallas, Texas

At 6 a.m., you call Operations and are told to report at 8 a.m. to pickup a load for North Holland, Illinois.

After reporting for duty at 8 a.m., you go through the routine of checking your shipping papers for the sealed cargo. It's a miscellanous dry freight load, Manifest #2345A, the Smith Shipping Company. You have the same tractor and a different trailer, #1268. After coupling and pre-trip, you are ready for dispatch. You are dispatched and on your way at 8:45 a.m.

At 2 p.m. you stop for lunch in Houston. At 3 p.m. you start driving again on US 59, then US 259. You stop driving at 7:45 p.m. in Marshall, Texas, 456 miles and 80 gallons of fuel purchased in Texas today. You spend the night in a local motel.

4. Fourth Day's Activity (May 4)

Starting Location: Marshall, Texas

You get up at 5 a.m., 30 minutes for breakfast and 15 more for your pretrip. At 6 a.m., you are driving on US-59 to the Arkansas State line. You keep on 59 until you get to I-30. At 11 a.m., you stop in Little Rock for lunch. One hour later, at noon, you are back in the cab and rolling down I-55. When you reach Cape Giradeau, Missouri, five hours later, you stop at a trucker's stop for 5 hours off duty. At 10 p.m., you climb in the sleeper berth for the night. 322 miles total today.

5. Fifth Day's Activity (May 5)

Starting Location: Cape Giradeau, Missouri

You are up at 7 a.m., and eat a good breakfast. At 7:30 a.m., you do a 15-minute pretrip and spend 15 more minutes fueling and you are on the road at 8 a.m. You stay on I-55 until you get to Illinois and stop for lunch at Springfield, Illinois, at noon. At 1 p.m., you are back on the road and push on through to the consignee in North Holland, Illinois. You get there at 3:30 p.m. and help to unload until 6 p.m. the trailer.

Now you have to bobtail back to Chicago but will need to rest first. So you climb back into your cab and drive for 1/2 hour to South Holland, Illinois. You spend 2-1/2 hours off duty at the truck stop, then climb into your sleeper berth at 9 p.m. Today you drove 135 miles in Missouri and 189 miles in Illinois.

6. Sixth Day's Activity (May 6)

Starting Location: South Holland, Illinois

You are anxious to get home. It's just another 3-hour run. You are up at 7 a.m. to grab a quick breakfast. It takes 15 minutes to pre-trip your tractor, from 2:15 to 2:30 a.m. You are on the road. There is no traffic and you arrive home terminal in Chicago at 5 a.m. 129 miles.

By the time you finish your paperwork, it's 5:30 a.m. You are off duty and climb into your car in the employees' parking lot. You're home at 6 a.m. to a family that is just getting up. The rest of the day is rest and relaxation.

PART 2 CO-DRIVER

In this part of the exercise, you are to fill out your log as a co-driver in a two-man operation. We will give you a list of the activities and the completed log for your co-driver, John Smith. You must fill out your log to make maximum use of rules related to sleeper berth use and off-duty time. Your total on-duty time for the 24-hour period should not exceed 12-1/2 hours.

List of Activities for Your Co-driver, John Smith

Time Period	Activity
Midnight to 4 a.m.	Resting in sleeper berth. You drive (162 miles)
4 a.m. to 5 a.m.	Stop to eat. Authorized break. Do not have to attend vehicle
5 a.m. to 8 a.m.	Driving the vehicle (126 miles)
8 a.m. to 9 a.m.	Repair stop. John Smith attends the vehicle.
9 a.m. to 1 p.m.	Resting in sleeper berth. You drive (170 miles)
1 p.m. to 2 p.m.	Dinner stop. Authorized break. Vehicle does not have to be attended.
2 p.m. to 7 p.m.	Driving the vehicle (216 miles)
7 p.m. to 8 p.m.	Service stop for refuel. John Smith is off-duty
8 p.m. to 11:30 p.m.	John Smith rides as co-driver (136 miles)
	Arrive at destination at 11 p.m., 30 minutes to check out off duty at 11:30 p.m.

A copy of John Smith's log based on the above activities will be projected on the screen in the classroom. Fill out your log based on the activities you should be performing.

(End of Reprint from Student Manual)

3. REVIEW OF EXERCISE (35 minutes)

Review Work of Students who Complete the Exercise Early

Students who finish 20 or 30 minutes before the time limit should have their work reviewed by the instructor.

- Use the Answer Key and guidelines for individual feedback listed below to aid in reviewing work.
- Have students correct any errors or redo illegible work.
- When the student has completed the work successfully, you may excuse him from the session.
- However, he should return for the group review at the end of the lesson and the briefing on maintaining logs throughout the curriculum.

Review Answers with Entire Group

Warn remaining students when there is ten minutes left to the exercise, five minutes, etc.

- If students need just a few more minutes to complete exercise, extend the time.
- Don't nold up the group review if one or two students are lagging way behind.
- You can give them individual attention later.

Review the exercise with the group by presenting and discussing visuals corresponding to each Daily Log and Recap.

- Part 1 of the exercise **(Visuals 1 - 7)**
  - Read the diary entries for the first day of the exercise.
  - Present the Daily Log entries for that day.
  - Present the Log Recap entries as a result of the daily log entries.
  - Repeat the process for each day in the exercise.
- Part 2 of the exercise **(Visuals 8 - 9)**
  - Present and discuss log entries for Part 2 of the exercise.

As you present each day's entries, answer student questions to resolve any problems.

Review and Individual Feedback

After the group review, collect all individual work.

Carefully review each students work and prepare individual feedback.

Feedback should consist of a brief written assessment of the completed exercise including any recommendation for remedial training.

Types of Errors

Correct and Accurate Entries Required

Entries for both parts 1 and 2 of the exercise should be complete and accurate as reflected in the Answer Keys provided.

In Part 2, sleeper berth and off-duty time should be used so as to result in a maximum of 12-1/2 hours on-duty time.

Legibility

Logs should be neat and legible

All lines should be straight and clearly indicate the status of the driver

Entries should be printed neatly with the exception of the student's signature

Missing Entries (Examples)

Fails to enter daily mileage

Does not sign log

Does not enter name of co-driver

Does not identify points where change of status occurred

Shipping information missing

Incorrect Entries (Examples)

Enters daily mileage on wrong line

Shows incorrect driver status

Enters both cargo manifest and other shipping information. This information is needed soley to crosscheck log. Cargo manifest number is best entry

Incomplete abbreviations for States

Computation Errors

Errors in math resulting in wrong number of hours for each daily status, incorrect number of hours available, failure to add up to 24 hours each day

Feedback

Problems Requiring Discussion

Point out and discuss minor problems which are largely due to carelessness or inexperience filling out logs, e.g., mileage on wrong line, incomplete abbreviations for State

Point out the significance of errors to each student

EXAMPLES: Missing signature makes Daily Log invalid

Failure to identify origin/destination and points where status changed can get driver in trouble as information is needed to assess number of hours and miles between each point

- Remind students that document is intended to show evidence that the driver understands and complies with the Hours of Service Regulations.
- Discuss all errors in that context, e.g., do entries clearly reflect driver's activities and show understanding and compliance with regulations?
- If you are satisfied that, despite some errors, students have a basic understanding of Hours of Service Regulations and procedures for filling out logs and log recap forms, do not require them to repeat exercise.

Problems Requiring Discussion and Remedial Training

- Serious problems should be noted and remedial training arranged.
- Logs which are completely illegible should be done over.
- Students who exhibit a failure to understand how to complete daily logs because they could not finish the exercise in time or because they simply do not understand what entries to make, should be required to repeat the exercise with assistance from the instructor.
- Students who have problems with computations which prevent them from completing Daily Logs correctly may require assistance with the addition of fractions or decimals.
- Serious problems and the need for remedial training should be discussed in the periodic review of student progress and so noted in their records.

4. ADDITIONAL LOG KEEPING PRACTICE

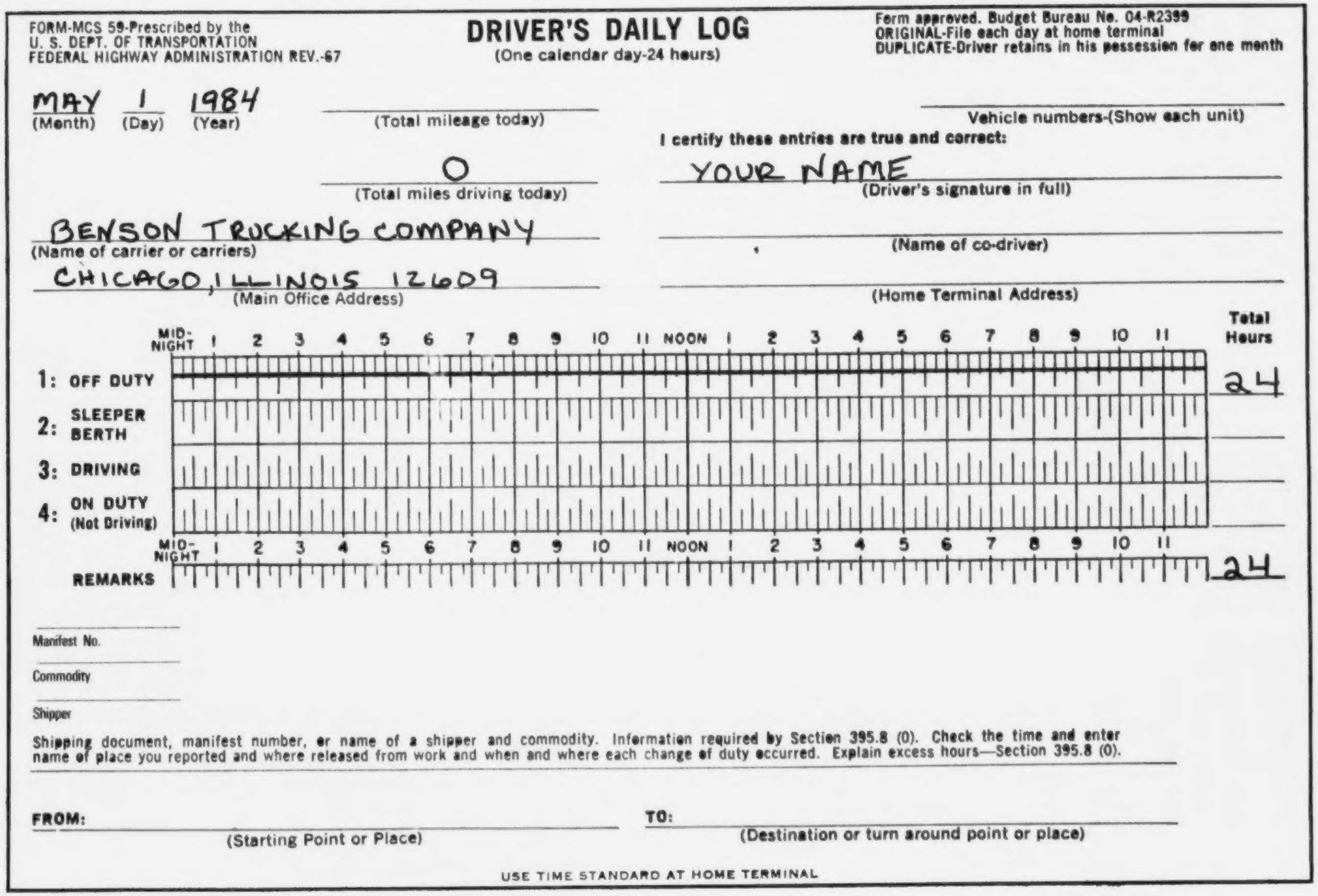
(Required After Completion of this Unit)

This activity is required and should be instituted by the school as early in course as possible, to provide further log keeping practice and to aid in recording student time.

Instructions

- Distribute log books to students for use in recording all school activities
- Require students to maintain daily logs
  - Classroom, lab, range and observation while in the vehicle should be logged as "on-duty-not driving"
  - Driving time should only be logged when the student is actually behind the wheel during road exercises
  - Log entries should be checked several times a week to assure:
    - Students are maintaining current logs
    - Entries are accurate, complete and legible
- Disposing of Daily Log Forms:
  - Instructor should collect copy 1 of the previous day's Log at the start of each day's training
  - Entries should be reviewed and discussed, using guidelines listed earlier for "Review of the Exercise"
  - Once the daily logs are reviewed, they should be forwarded to the school administration for review to see if student is receiving minimum range and BTW time required by the course
  - Student will retain their copy of daily log in their own logbook

Solo Driver: First Day



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 1 (Day) 1984 (Year)

_______ (Total mileage today)

_______ Vehicle numbers-(Show each unit)

0 (Total miles driving today)

I certify these entries are true and correct:

YOUR NAME (Driver's signature in full)

BENSON TRUCKING COMPANY (Name of carrier or carriers)

_______ (Name of co-driver)

CHICAGO, ILLINOIS 12609 (Main Office Address)

_______ (Home Terminal Address)

MID-NIGHT 1 2 3 4 5 6 7 8 9 10 11 NOON 1 2 3 4 5 6 7 8 9 10 11
Total Hours
1: OFF DUTY
2: SLEEPER BERTH
3: DRIVING
4: ON DUTY (Not Driving)
REMARKS

1: OFF DUTY — 24

Total — 24

Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: _______ (Starting Point or Place)

TO: _______ (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Solo Driver: Second Day

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 2 (Day) 1984 (Year)

(Total mileage today)

263 (Total miles driving today)

TRACTOR #2311 TRAILER #1703
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

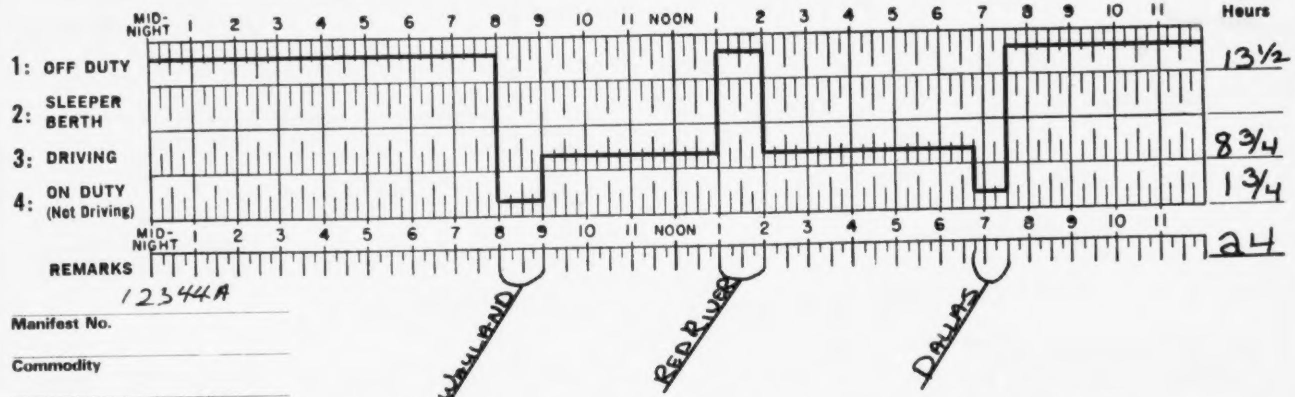
YOUR NAME
(Driver's signature in full)

BENSON TRUCKING COMPANY
(Name of carrier or carriers)

(Name of co-driver)

CHICAGO, ILLINOIS 12609
(Main Office Address)

(Home Terminal Address)



	Total Hours
1: OFF DUTY	13½
2: SLEEPER BERTH	
3: DRIVING	8¾
4: ON DUTY (Not Driving)	1¾
	24

12344A
Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: WAYLAND, TEXAS
(Starting Point or Place)

TO: DALLAS, TEXAS
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Solo Driver: Third Day

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 3 (Day) 1984 (Year)

(Total mileage today)

TRACTOR #2311 TRAILER #11703
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

456
(Total miles driving today)

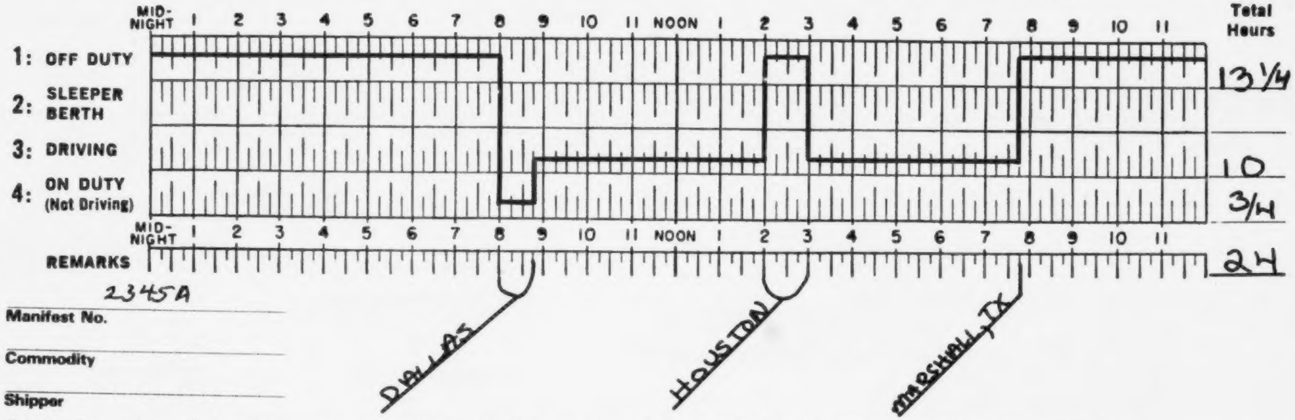
YOUR NAME
(Driver's signature in full)

BENSON TRUCKING COMPANY
(Name of carrier or carriers)

(Name of co-driver)

CHICAGO, ILLINOIS 12609
(Main Office Address)

(Home Terminal Address)



Manifest No. 2345A

Commodity

Shipper

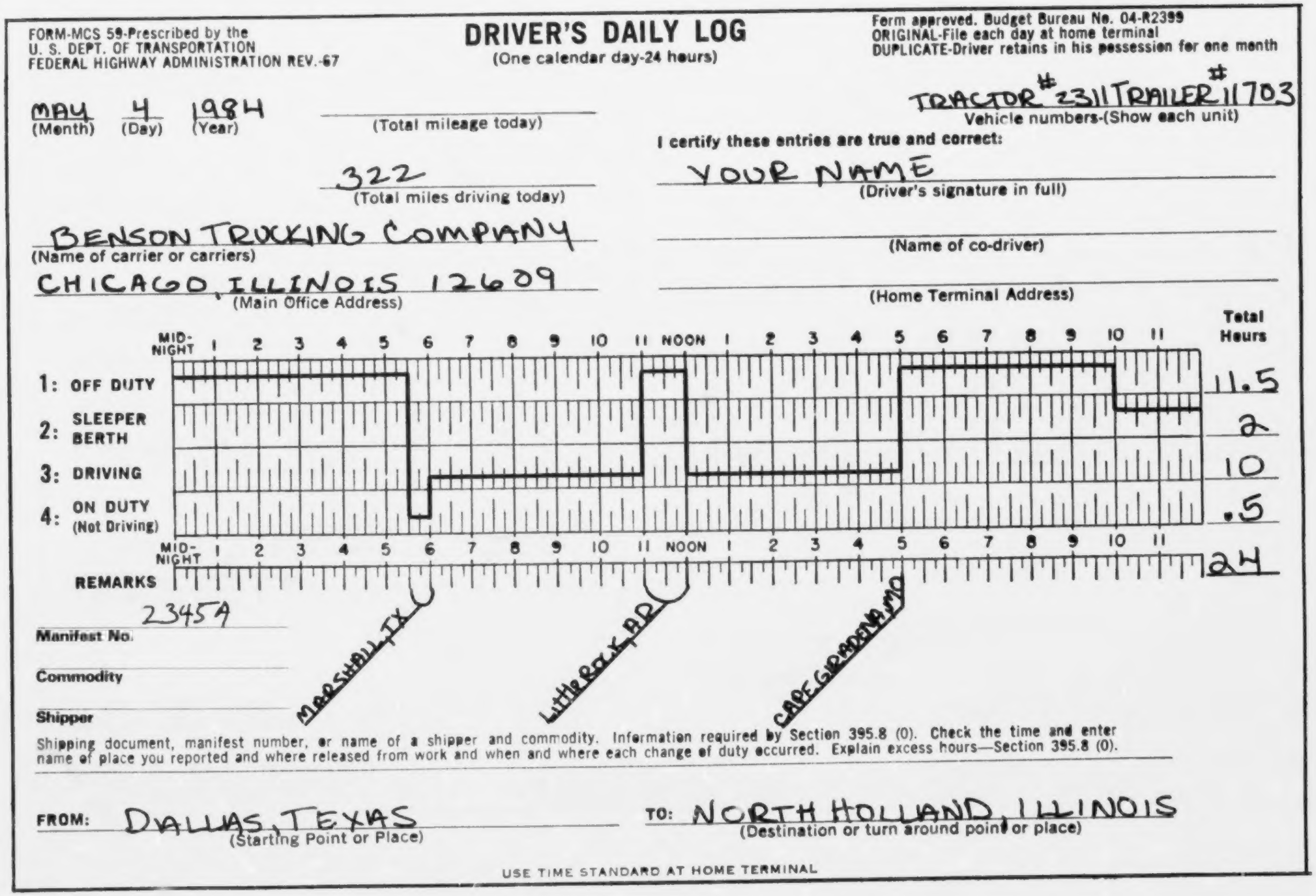
Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: DALLAS, TEXAS
(Starting Point or Place)

TO: NORTH HOLLAND, ILLINOIS
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Solo Driver: Fourth Day



FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 4 (Day) 1984 (Year)

(Total mileage today)

TRACTOR # 2311 TRAILER # 11703
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

322
(Total miles driving today)

YOUR NAME
(Driver's signature in full)

BENSON TRUCKING COMPANY
(Name of carrier or carriers)

(Name of co-driver)

CHICAGO, ILLINOIS 12609
(Main Office Address)

(Home Terminal Address)

	Total Hours
1: OFF DUTY	11.5
2: SLEEPER BERTH	2
3: DRIVING	10
4: ON DUTY (Not Driving)	.5
	24

REMARKS

MARSHALL, TX

Little Rock, AR

CAPE GIRADEAU, MO

23454
Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: DALLAS, TEXAS
(Starting Point or Place)

TO: NORTH HOLLAND, ILLINOIS
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Solo Driver: Fifth Day

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY (Month) 5 (Day) 1984 (Year)

(Total mileage today)

324 (Total miles driving today)

TRACTOR # 2311 TRAILER # 11703
Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

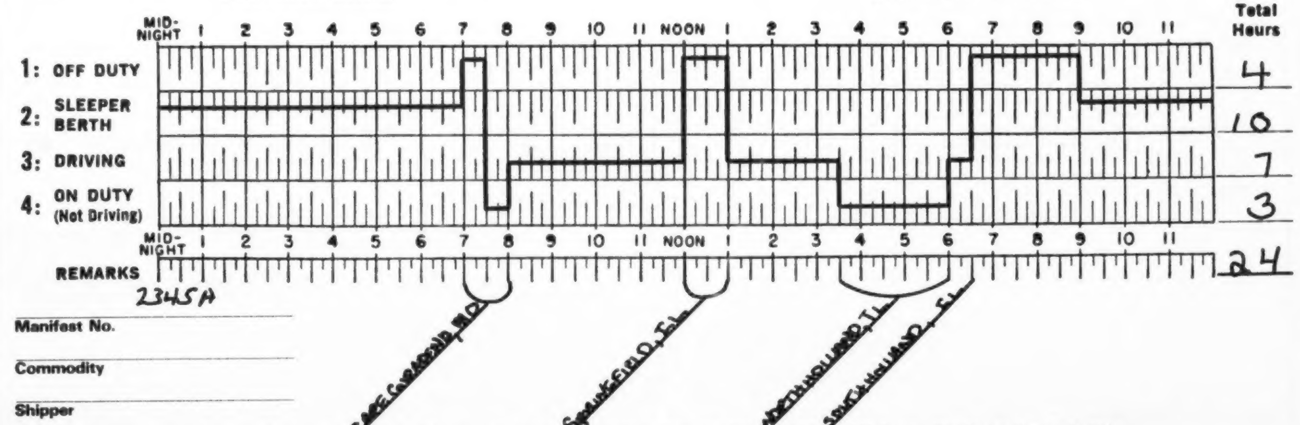
YOUR NAME
(Driver's signature in full)

BENSON TRUCKING COMPANY
(Name of carrier or carriers)

(Name of co-driver)

CHICAGO, ILLINOIS 12609
(Main Office Address)

(Home Terminal Address)



	Total Hours
1: OFF DUTY	4
2: SLEEPER BERTH	10
3: DRIVING	7
4: ON DUTY (Not Driving)	3
	24

REMARKS 2345A

CAPE GIRARDEAU, MO

SPRINGFIELD, IL

NORTH HOLLAND, IL

SOUTH HOLLAND, IL

Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: DALLAS, TEXAS
(Starting Point or Place)

TO: NORTH HOLLAND, ILLINOIS
(Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Solo Driver: Sixth Day

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG
(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

MAY 6 1984 (Month) (Day) (Year)

(Total mileage today)

TRACTOR #2311 TRAILER #11703 — Vehicle numbers-(Show each unit)

152 — (Total miles driving today)

I certify these entries are true and correct:

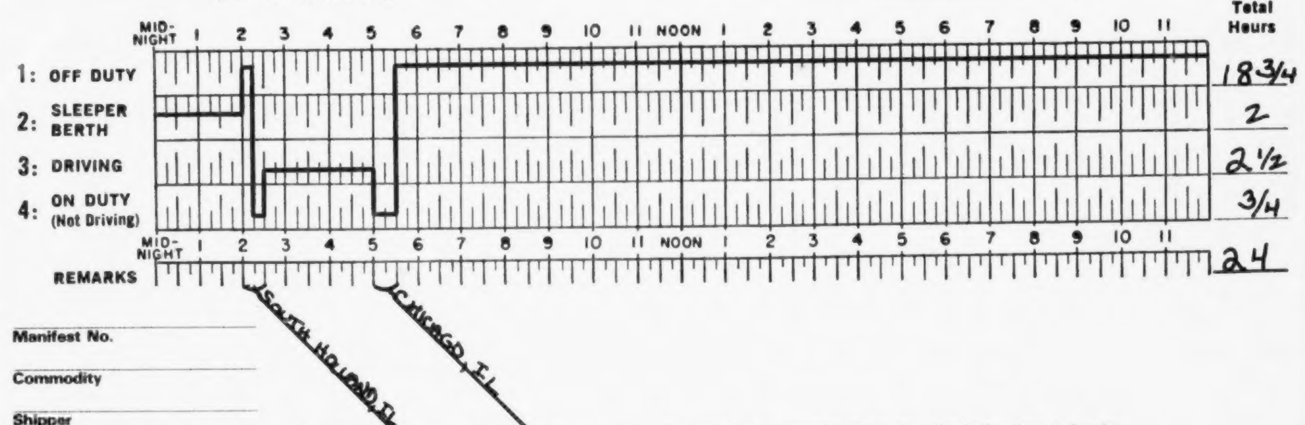
YOUR NAME — (Driver's signature in full)

BENSON TRUCKING COMPANY — (Name of carrier or carriers)

(Name of co-driver)

CHICAGO, ILLINOIS 12609 — (Main Office Address)

(Home Terminal Address)



	Total Hours
1: OFF DUTY	18 3/4
2: SLEEPER BERTH	2
3: DRIVING	2 1/2
4: ON DUTY (Not Driving)	3/4
	24

Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: SOUTH HOLLAND, ILLINOIS (Starting Point or Place) TO: CHICAGO, ILLINOIS (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Visual 7A

RECORD OF TIME WORKED

DRIVER:

MONTH:

BOOK-NUMBER

1	2	3	4	5
DAILY TOTAL DUTY & DR. HRS.				
		8 DAYS — 70 HOURS		
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH		TOTAL ON DUTY HOURS LAST 8 DAYS	TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ⬇
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
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18				
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21				
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27				
28				
29				
30				
31				

INSTRUCTIONS

This form is designed for use in maintaining a running record of a driver's time on-duty each day. It may be used equally well for drivers working on a midnight-to-midnight or noon-to-noon basis and, by using the proper chart, for drivers eligible to work 60 hours in 7 consecutive days or 70 hours in 8 consecutive days. The person using the chart can also determine the time that a driver has available for work the next day in compliance with the Hours of Service Regulations of the Department of Transportation.

In keeping the record, be sure to use the proper chart. For a driver working 70 hours in 8 consecutive days, use the chart on the left. For a driver working 60 hours in 7 consecutive days, use the chart on the right.

Column 1 of each section lists days of the month, 1-31 inclusive, plus the last days of the preceding month that must be counted.

In Column 2 of the proper section enter the time on-duty for the day, (the total of Line 3, Driving, and Line 4, On-Duty Not Driving, of the Drivers Daily Log). If the driver does not work on any day, enter a "0" for that day and compute other figures in accordance with the instructions below, as though he had worked.

70 HOURS — 8 DAYS

Each day of the month enter the total hours on-duty in the last 8 days (from Column 2) in Column 3. Enter the total time on-duty in the last 7 days (from Column 2) in Column 4. To determine the time the driver can legally work on the next day, subtract the last entry in Column 4 from 70 and enter the result in Column 5.

60 HOURS — 7 DAYS

Each day of the month enter the total hours on-duty in the last 7 days (from Column 2) in Column 3. Enter the total time on-duty in the last 6 days (from Column 2) in Column 4. To determine the time that the driver can legally work on the next day, subtract the last entry in Column 4 from 60 and enter the result in Column 5.

HOURS OF SERVICE CONTROL

The hours of service of each driver must be recorded on a separate sheet each month, for purposes of control.

Violation of weekly on-duty limitations will automatically show up in Column 3. Violations of the 10-hour driving rule or the prohibition against driving after 15 hours on-duty following the last 8 consecutive hours off-duty must be detected by reviewing each driver's log sheets. Violations should be recorded in the summary on the reverse of this form and the reason for each violation should be noted in the space provided.

Form C0850, Reorder From
American Trucking Associations, Inc.
1616 P Street, N. W.
Washington D. C. 20036

1	2	3	4	5
	DAILY TOTAL DUTY & DRIVING HOURS			
		7 DAYS — 60 HOURS		
LAST SIX CONSECUTIVE DAYS IN PRECEDING MONTH		TOTAL ON DUTY HOURS LAST 7 DAYS	TOTAL ON DUTY HOURS LAST 6 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (60 MINUS) (COL. 4) ⬇
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
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23				
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27				
28				
29				
30				
31				

Solo Driver: Recap

1	2	3	4	5
DAILY TOTAL DUTY & DR. HRS.				
LAST SEVEN CONSECUTIVE DAYS IN PRECEDING MONTH		8 DAYS — 70 HOURS		
		TOTAL ON DUTY HOURS LAST 8 DAYS	TOTAL ON DUTY HOURS LAST 7 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (70 MINUS) (COL. 4) ⬇
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

RECORD OF TIME WORKED

DRIVER:

MONTH:

BOOK-NUMBER

INSTRUCTIONS

This form is designed for use in maintaining a running record of a driver's time on-duty each day. It may be used equally well for drivers working on a midnight-to-midnight or noon-to-noon basis and, by using the proper chart, for drivers eligible to work 60 hours in 7 consecutive days or 70 hours in 8 consecutive days. The person using the chart can also determine the time that a driver has available for work the next day in compliance with the Hours of Service Regulations of the Department of Transportation

In keeping the record, be sure to use the proper chart. For a driver working 70 hours in 8 consecutive days, use the chart on the left. For a driver working 60 hours in 7 consecutive days, use the chart on the right.

Column 1 of each section lists days of the month, 1-31 inclusive, plus the last days of the preceding month that must be counted

In Column 2 of the proper section enter the time on-duty for the day, (the total of Line 3, Driving, and Line 4, On-Duty Not Driving, of the Drivers Daily Log). If the driver does not work on any day, enter a "0" for that day and compute other figures in accordance with the instructions below, as though he had worked.

1	2	3	4	5
LAST SIX CONSECUTIVE DAYS IN PRECEDING MONTH	DAILY TOTAL DUTY & DRIVING HOURS	7 DAYS — 60 HOURS		
		TOTAL ON DUTY HOURS LAST 7 DAYS	TOTAL ON DUTY HOURS LAST 6 DAYS	HOURS AVAILABLE FOR ON DUTY TIME NEXT DAY (60 MINUS) (COL. 4) ⬇
	10			
	10			
	15			
	4			
	15			
	0			
1	0	54	44	16
2	10½	54½	44½	15½
3	10¾	45¼	40¼	19¾
4	10½	50¾	46¾	13¼
5	10	56¾	41¾	18¼
6	3¼	45	45	15
7				
8				
9				
10				
11				
12				
13				
14				

Solo Driver: Recap (Cont'd)

15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

70 HOURS — 8 DAYS

Each day of the month enter the total hours on-duty in the last 8 days (from Column 2) in Column 3. Enter the total time on-duty in the last 7 days (from Column 2) in Column 4. To determine the time the driver can legally work on the next day, subtract the last entry in Column 4 from 70 and enter the result in Column 5.

60 HOURS — 7 DAYS

Each day of the month enter the total hours on-duty in the last 7 days (from Column 2) in Column 3. Enter the total time on-duty in the last 6 days (from Column 2) in Column 4. To determine the time that the driver can legally work on the next day, subtract the last entry in Column 4 from 60 and enter the result in Column 5.

HOURS OF SERVICE CONTROL

The hours of service of each driver must be recorded on a separate sheet each month, for purposes of control.

Violation of weekly on-duty limitations will automatically show up in Column 3. Violations of the 10-hour driving rule or the prohibition against driving after 15 hours on-duty following the last 8 consecutive hours off-duty must be detected by reviewing each driver's log sheets. Violations should be recorded in the summary on the reverse of this form and the reason for each violation should be noted in the space provided.

15				
16				
17				
18				
19				
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21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Co-Driver: John A. Smith

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

Today's Date (Month) (Day) (Year)

810 (Total mileage today)

TRACTOR 416 | TRAILER 210 Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

342 (Total miles driving today)

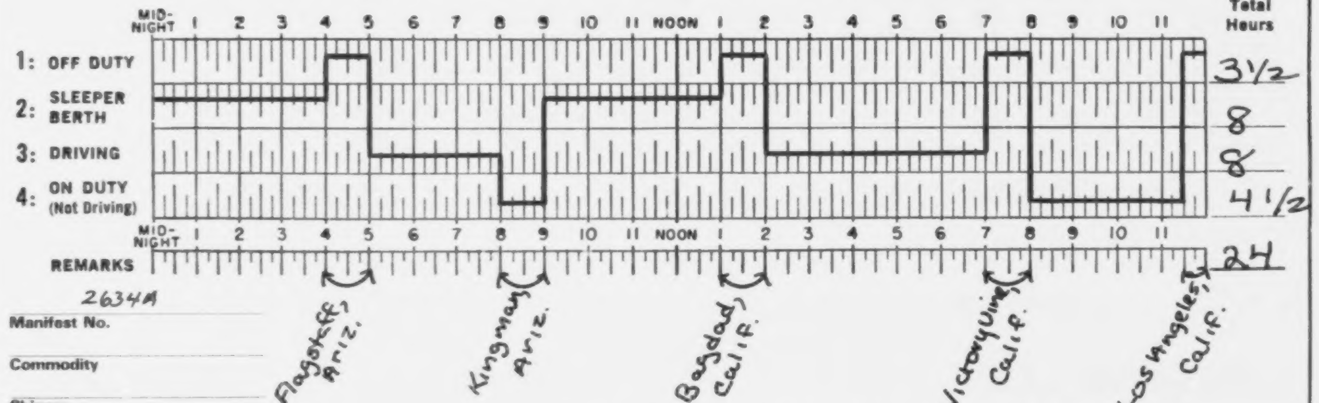
John A. Smith (Driver's signature in full)

XYZ Products Co. (Name of carrier or carriers)

Student's Name (Name of co-driver)

Los Angeles, California (Main Office Address)

Chicago, ILL. (Home Terminal Address)



26344

Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: Chicago, ILL. (Starting Point or Place)

TO: Los Angeles, Calif. (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

Co-Driver: Student Driver

FORM-MCS 59-Prescribed by the
U. S. DEPT. OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION REV.-67

DRIVER'S DAILY LOG

(One calendar day-24 hours)

Form approved. Budget Bureau No. 04-R2399
ORIGINAL-File each day at home terminal
DUPLICATE-Driver retains in his possession for one month

Today's Date (Month) (Day) (Year)

810 (Total mileage today)

468 (Total miles driving today)

XYZ Products Co. (Name of carrier or carriers)

Los Angeles, Calif. (Main Office Address)

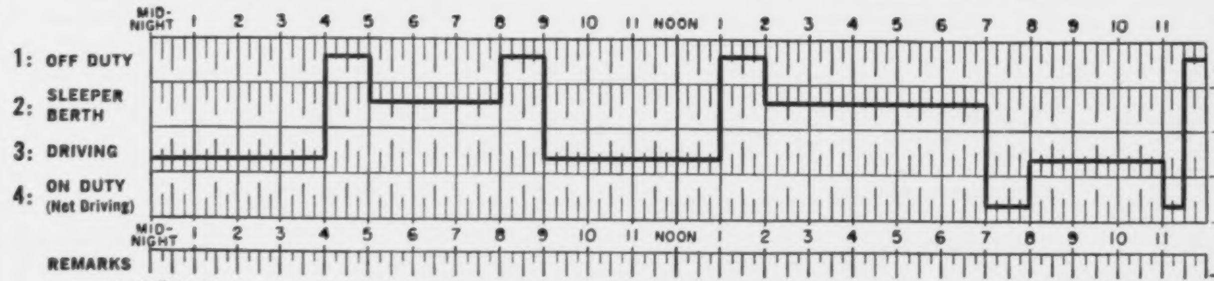
Tractor 416/Trailer 210 Vehicle numbers-(Show each unit)

I certify these entries are true and correct:

Student's Signature (Driver's signature in full)

John A. Smith (Name of co-driver)

Chicago, ILL (Home Terminal Address)



Total Hours
3½
8
11
1½
24

REMARKS

2634A
Manifest No.

Commodity

Shipper

Shipping document, manifest number, or name of a shipper and commodity. Information required by Section 395.8 (0). Check the time and enter name of place you reported and where released from work and when and where each change of duty occurred. Explain excess hours—Section 395.8 (0).

FROM: Chicago, Ill. (Starting Point or Place)

TO: Los Angeles, Calif. (Destination or turn around point or place)

USE TIME STANDARD AT HOME TERMINAL

UNIT 5.4
ACCIDENT PROCEDURES

UNIT 5.4 ACCIDENT PROCEDURES

PURPOSE

The purpose of this unit is to enable students to follow the procedures imposed by safety and legality at an accident scene, and to properly report accidents.

OBJECTIVES

Performance Objectives

Students must

- guard the scene of an accident to prevent futher injury or damage, and obtain assistance.
- obtain all information needed for accident reports to the State, the employer, and the insurance company.
- render assistance to any injured parties, including providing first aid, provided he/she has ahd proper training
- extinguish fires including cargo, engine, electrical, and tire fires.
- avoid discussions of legal questions (e.g., liability).

Knowledge Objectives

Students must know

- State laws and company requirements dealing with stopping and rendering assistance at the scene of an accident.
- procedures for protecting the scene of an accident and Federal and State requirements for same.
- Federal, State, insurance company, and employer requirements regarding accident reporting.
- proper first aid procedures for the types of injuries most likely to be sustained in highway accidents.
- types of fire extinguishers appropriate to each class of fire.
- procedures for extinguishing cargo, engine, electrical, and tire fires.
- where to stop the vehicle in the event of a fire.

Skill Objectives

Student must be able to

- operate fire extinguishers correctly to put out fires.
- correctly apply first aid procedures related to resuscitation, stopping bleeding, and shock.

Attitude Objectives

Student must believe that

- leaving the scene of an accident and/or the failure to report an accident is illegal and can have serious consequences.
- it is dangerous to attempt to render first aid without proper training.
- drivers have an obligation to avoid actions that may have legal consequences for their employers.

LESSONS

Lesson 1.	**Accidents and Accident Reporting (Classroom)**	**1 hour 45 minutes**
Lesson 2.	**Principles of First Aid (Classroom)**	**10 hours**
Lesson 3.	**Fires and Firefighting (Classroom)**	**1 hour 15 minutes**
Lesson 4.	**Firefighting Demonstration (Lab)**	**45 minutes**
		13 hours 45 minutes

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* NOTE: This employs the American Red Cross course in "Essential First Aid and CPR" and requires 10 hours to complete -- the minimum time is 2-1/2 hours needed to cover material in Lesson 2 (which is only used if the Red Cross course is not taught). Although the Minimum Training Standards do not require first aid training, this model curriculum considers the subject so essential that it requires the user to provide students with either one or the other course. Users that elect to use the 10-hour Red Cross course have the option of reducing certain other requirements. For details, see Time Waivers and Optional Lesson Requirements" in the General Curriculum Standards portion of the Minimum Training Standards.

LESSON 1 ACCIDENTS AND ACCIDENT REPORTING (CLASSROOM)

Overview

Time Allotted: 1 hour 45 minutes

Prerequisites: None

Purpose:

The purpose of this lesson is to enable students to understand correct procedures at the scene of an accident. Accident reporting procedures are also discussed including the effects of having an accident on the drivers record.

Materials

Instructional Aids

Visuals 1 - 16

Student Material

Copy of the Federal Motor Carrier Safety Regulations, Parts 390-397

Steps to Take at the Scene of an Accident, in Unit 5.4 of Student Manual

Placement of Reflectors to Protect the Scene of an Accident, Fire or Breakdown, in Unit 5.4 of Student Manaul (3 illustrations)

Two Accident Scenes - for Classroom Discussion, in Unit 5.4 of Student Manual

Instructor Material

Copy of the Federal Motor Carrier Safety Regulations, Parts 390-397

Sample of Accident Reporting Packets carried in your school's vehicles for students to examine

Examples of various driver accident report forms collected from insurance companies and motor carriers in your area for studentto examine

Two Accident Scenes - for classroom discussion (reprinted in this lesson)

Content

Activity or Topic	Approximate Time
1. STEPS TO TAKE AT THE SCENE OF AN ACCIDENT	10 minutes
2. PROTECTING THE SCENE OF AN ACCIDENT, BREAKDOWN, OR FIRE	15 minutes
3. HANDLING THE ACCIDENT SCENE	15 minutes
4. REPORTING THE ACCCIDENT	5 minutes
5. EVALUATING THE ACCIDENT	20 minutes
6. ACCIDENTS INVOLVING HAZARDOUS MATERIALS	12 minutes
7. REVIEW AND PROBLEM-SOLVING DISCUSSION	28 minutes
	1 hour 45 minutes

1. STEPS TO TAKE AT THE SCENE OF AN ACCIDENT (10 minutes)

Facts to Know Before an Accident

What Drivers Must Know If An Accident Occurs

- What to do at the scene of an accident
- How to report the accident
- What having an accident on his record means

Why it is Important to Act Properly at the Scene of an Accident

- Against the law to leave scene of accident
  - Must identify vehicle owner and driver
  - Need to assist the injured
  - What he says/does affects future liability and public relations

What Law Requries If Driver Involved in Accident

- FMCSR 392.40 requires driver involved in accident to:
  - Stop immediately
  - Take measures to protect the scene and prevent further accident
  - Render all reasonable assistance to injured persons
  - Do not move injured persons if likely to cause further injury
  - Driver information requested of those involved in accident
    - Name and address
    - Name and address of motor carrier
    - Vehicle registration tag number
    - Exhibit chauffeurs or operators license
  - Report accident to motor carrier as soon as possible

- FMCSR 392.41, striking unattended vehicle
  - Stop and make "reasonable effort" to locate driver or "custodian" of other vehicle
  - If cannot locate
  - Prepare note to leave in conspicuous place on vehicle
  - Include your name and address, plus that of your employer/company motor carrier

NOTE: Ask students to read FMCSR 392.40 and 392.41. Discuss and answer questions.

Visual 1 Steps Driver Must Take at the Scene of an Accident

Steps to Take at the Scene of an Accident in Which You are Involved

Based on law, common sense and most company policy, following are eight basic steps to take at scene of accident:

1. Stop
   - Put on 4-way flashers.
2. Protect the Scene to Prevent Further Accidents.
3. Aid the Injured.
4. Notify Police.
   - Request ambulance if necessary.
5. Collect the Facts.
   - Get names and addresses of witnesses.
   - License plate numbers of vehicles in vicinity.
   - Name/address of other drivers and/or passengers involved.
   - Draw sketch of scene.
6. Conduct Yourself Properly.
   - Stay cool--be polite.
   - Don't discuss fault with anyone.
7. Give Required Identification to Anyone Requesting it.
8. Remain at the Scene Until all Requirements are Met.
   - All facts gathered and information given to authorities.
   - Spilled cargo cleaned up.
   - Vehicle checked over to see if can operate safely or mechanic called to make repairs.
   - Checked in and received final instruction from supervisor.

2. PROTECTING THE SCENE OF AN ACCIDENT, BREAKDOWN OR FIRE (15 minutes)

Driver Responsibility

Must protect scene when vehicle stopped because of accident.
Same procedures involved when protecting scene because of breakdown or fire.

Purpose

To warn oncoming traffic in order to avoid further accidents driver must know:

- Types of warning devices used to protect scene.
- How to handle devices safely.
- Procedures for protecting scene including placement of warning devices.

Visual 2 Emergency Reflective Triangles

Types of Warning Devices Required to Protect the Scene

Emergency Triangles

- Directional red reflective triangles required by FMCSR 393.95 on all vehicles equipped after January 1974
  - Can be used day and night
  - Provide own illumination, no need to light flame
  - Can be reused unless broken

Visual 3 Use of Flares or Fusees

Flares or Fusees

- Can be used on vehicle equipped before January 1974
- Can be used to supplement reflective triangles on vehicles equipped after January 1974
  - Description
    - Made up of two components
    - Ignitor button which works like wooden match and is covered by plastic cap
    - Ignites to set off flame in second component, the fire column
    - Fire column is tube filled with chemical, usually strontium and other flammable material

Old and New Style Flares

- Old style-must break seal to take plastic cap off
- When seal is broken, cannot be restored
- New style, plastic cap can be replaced if flare or fusee not used

Storage

- Usually stored in metal kit for safety
- Cannot store without cap
- Can be ruined by moisture
- Has life of about 12 months even if stored properly

Safe Use

- Not intended as hand held signal
- Molten chemical can drip off and spatter, will stick to hands and clothes causing severe burns

Steps in Use

- Remove cap
- Hold flare or fusee with ignitor button pointing away from your body
- Take cap in other hand and strike red scratch mix lightly across black ignitor button
- Do not leave hand or arm in front of flare as it should ignite instantly
- Be sure no hot residue is stuck to cap

Place Safely on Highway

Held in place on highway by anti-roll tab on plastic cap or by wires or spikes.

Do not place on raised pavement markers and lane lines of painted plastic, this is a fire hazard.

Burning Time

Most flares have 15-30 minute burning time.

Truckers most often use 15-minute variety.

Can extend burning time if needed by using "W" pattern.

Place four flares in "W" pattern with bottom of first flare to be ignited next to top of next flare.

When flare 1 goes out, it ignites flare 2, etc.

Extinguishing Flares

If allowed to burn out, no disposal necessary.

If burning flare has to be extinguished.

- Carefully pickup flare on nonburning end.
- Strike burning end sharply against pavement.
- Will break column of material which will fall out of tube and extinguish itself.

Do Not Use with Hazardous Material

Cannot use fusees, flares or any warning device or signal produced by a flame with vehicles transporting Class A or Class B explosives.

Cargo tankers used to transport flammable liquid or flammable compressed gas whether loaded or unloaded.

Motor vehicles powered by compressed gas.

Visuals 4, 5 and 6 Placement of Warning Devices

Procedures for placement of warning devices

Purpose

To warn approaching traffic and guide them around scene.

Should be visible and not confuse other traffic, e.g., too many flares blend in with red lights and confuse traffic.

Hazards when setting up warning devices.

- Many drivers are hit when putting out warning devices.
- Prevent by walking off traveled roadway.
- At night, have reflector open and facing approaching traffic to act as illumination for driver as he is walking.

Steps to take when making emergency stop:

- Step 1--Flash the truck's 4-way flashers as a warning to traffic.
- Step 2--Use the flashers up to 10 minutes but no longer. During this 10 minutes, put out emergency warning devices as detailed below.
- Step 3--When ready to start driving again, put on trucks warning flashers.
- Remove emergency warning devices.

Placement of warning devices
- Always place flares and/or reflectors at least 100 feet down highway.
- On a two-way highway.
  - One device on the traffic side within ten feet of the rear of the truck.
  - One device at about 100 feet from the truck, in the center of the traffic lane or shoulder where the truck is stopped; direct device toward oncoming traffic.
  - One device at 100 feet in the other direction, placed so that oncoming traffic can see it.
- On one-way or divided highways.
  - Emergency warning devices must be placed differently on one-way or divided highways.
- Place them this way:
  - One at 200 feet from the truck in the direction of approaching traffic; place it in the center of the lane or shoulder where the truck is stopped.
  - One at 100 feet from the truck, approaching traffic.
  - One no more than 10 feet to the rear of the truck.

On hills and curves or where an object blocks the view.
- If stopped within 500 feet of a curve, top of a hill, or something that blocks the view, place devices this way:
  - One at no closer than 100 feet but no farther than 500 feet from the truck; place it so oncoming traffic can see it.
  - To use the other two emergency warning devices, follow the rules for two-lane or divided highways.

In business or residental districts.
- Use emergency warning devices when there's not enough daylight or street lighting to give oncoming drivers a clear view of your truck.

NOTE: Ask students to read FMCSR 392.21 and 392.25. Discuss and answer any questions

3. HANDLING THE ACCIDENT SCENE (15 minutes)

Visual 7 Assist the Injured and Call for Help

Assist the Injured

- After stopping and protecting the scene, first priority is to assist the injured.
- Help anyone who is injured.
- Try to make him comfortable and warm.
- Know you first aid limitations.
  - Don't try to do anything you are not adequately trained for.
  - Don't try to move injured.
  - Avoid additional liability.
- Insist that anyone who claims he is injured get medical help.
- Doctor's record best protection against future claims.

NOTE: Basics of First Aid discussed in Lesson 2, of Unit 5.4

Call Police and Ambulance

Determine need for ambulance.
Know the exact address or location of accident (many hysterical callers can't give proper directions and delay can be fatal).
Use CB emergency channel or send someone if phone not available.

Visual 8 Preliminary Accident Report

Collect the Facts

Stay at scene and collect the facts.
Information collected at accident scene vital to later completing accident reports.

Use Accident Packets

Most companies give driver's accident packets to aid in handling scene of accident.
Accident packet contains:
- Basic instructions for handling scene of accident.
- Preliminary accident report or memorandum.
- Witness cards.

Basic facts to collect:
- When and where accident occurred, time of day, street location, weather and driving conditions.
- Name and address and license number of other driver.
- Description and license plate number of other vehicle(s).
- Name and address and license number of owner of other vehicle(s).
- Description of damage to other vehicles/property.
- Name and address of all injured parties, description of injury and name of hosptial where taken.
- Name and badge number of policeman investigating accident.

Visual 9 Diagram of an Accident

Diagram of Accident

Draw diagram of accident showing position of vehicles on form provided or on piece of paper.
If possible, photograph the accident scene, make sure you do this before any vehicles are towed or moved.

Vilsual 10 Obtain Witnesses

Witnesses and Witness Cards

Get names and addresses of witnesses.
Try to get witnesses who can verify vehicle positions, speed, use of turn signals, skid marks, etc.
Use witness charts provided to record information.
If no volunteers, write down license tag numbers of potential witnesses, i.e., those vehicles which saw accident.

Visual 11 Remain at the Scene and Fulfill Your Responsibilities

Conduct Yourself Properly

Remain polite and calm even if others blame you for accident.
Don t assess blame either way or admit in any way that you were wrong.
Remember: legal liability of what happened will be determined several months later and what you do or say affects that decision.
Don't try to settle the accident at the scene.
  Don't give or accept money.
  Don't sign any type of release form, only paper you have to sign is traffic citation, if cited.

Give Required Identification to Anyone Requesting It

Name and address.
Company's name and address.
Vehicle's owner name and address (if a leased vehicle).
Chauffeur's license number.
Vehicle registration numbers.
In some states, required to give name/address of insurance carrier.

Remain at Scene Until all Requirements are Met

All information given to others involved and/or authorities
Spilled cargo cleaned up.
  Remove unbroken packages in safest possible manner.
  Clean up contents of broken packages as promptly as possible.
Give vehicle pretrip type inspection to determine whether or not it is safe to drive.
If not safe, call mechanic to make repairs or tow truck to remove vehicle from scene.
Call company for instructions.
  Report damage to yourself, truck, cargo.
  Ask for assistance as needed, e.g., may need a replacement vehicle or crew to transfer cargo.
  Get instructions from supervisor on whether to continue trip (if safe) or return to terminal.

NOTE: Present and briefly discuss here examples of driver accident forms. Also, if your school has accident packets for driver use, distribute available copies for students to examine.

4. REPORTING THE ACCIDENT (5 minutes)

Importance of Reporting

Required by law
All accidents no matter how minor must be reported promptly to your company
Quickest way to lose job is to not report accident
Reporting accident on return to terminal

- Driver uses information in accident packet to help supervisor fill out required reports
    - Company accident reports
    - Insurance company accident reports
    - Any Federal Highway Reports required

Visual 12 Supervisor's Accident Report

Supervisor Reports

- Driver's supervisor usually fills out additional accident report based on his investigation
- Identifies safety procedures (if any) which were violated
- States action (if any) to be taken with driver, e.g., review safety procedure violated to prevent similar future accident

Visual 13 Carrier Accident Reporting Requirements

Carrier Reports

- FMCSR 394 requires motor carrier to report all "reportable accidents" to DOT
    - Reportable accidents:
        - dily injury requiring medical attention
        - Death of human or total damage to all property exceeds $2,000 not reportable situations
        - Accidents occurring while getting into and out of stationary vehicle
        - Accidents involving just loading/unloading of cargo (unless hazardous material spill)

Accident Records

- Driver accident record cards
    - Carrier may keep individual accident records for each driver
    - Purpose: To reveal drivers with high frequency of accidents
- Accident files, required by FMCSR 395
    - Motor carrier must keep file of all claims and State accident reporting forms for three years
- Significance of accident records to driver
    - Source of information about driver's safety
    - Bad driving record could mean loss of job and difficulty getting new jobs
    - Bad driving record indicated by high frequency of accidents and involvement in "preventable" accidents

5. EVALUATING THE ACCIDENT (20 minutes)

Why Evaluate?

Accidents involve tragic injuries, death and are very costly
(Some companies have gone into bankruptcy because of accident claims)
Future accidents can be prevented or avoided by evaluating accidents
  Find out what caused it
  Figure out how to prevent similar accident from happening in future
All accident reports and records aid in this evaluation

Company Classification of Accidents

Accidents usually classified as preventable or non-preventable (or chargeable or non-chargeable)
Classified by supervisors, company safety board, or joint management/driver committee
Purpose: driver can lose job if involved in too many chargeable or preventable accidents

Accidents Classified as Preventable Vs. Nonpreventable

Classification of Accidents

Accidents classified on basis of whether driver used proper, safe, defensive driving procedures
Not classified on basis of who was "legally at fault"
Nonpreventable--If driver took all reasonable actions to avoid becoming involved in accident

Preventable--If there was at least one thing that professional driver could have done and failed to do

Significance to Driver

Important to report all facts at accident scene to aid in determining if accident preventable or not
Involvement in "preventable" accidents gives driver a bad safety record and can effect employment

Example for Class Discussion

Visual 14 Preventable or Not?

Instructions

Present Visual 14, which is a diagram of an accident situation. The rig was stopped for a red light at a large intersection. When the light changed to green, the driver pulled out, crossed two southbound lanes and the median, and had cleared the two northbound lanes with his tractor. At that point a northbound passenger car, traveling at 45 mph, ran through the red light and ran under and into the trailer. Both drivers wre injured. The car was totaled. The truck driver said that for all practical purposes, he was past the intersection when the other driver struck him. At that point, he argued, there was no evasive action he could have taken.

Ask students to determine if accident was "preventable" or not (on part of truck driver). Ask them to state why or why not.

Visual 15 Preventable vs Non-preventable -- Basic Rule

Decision of The Motor Carrier's Accident Review Safety Board on preventability of accident
- Accident was preventable
- Defensive action must be taken to avoid becoming involved in a "no way out situation"
- Driver should have treated large intersection as divided highway

A professional driver should notice car traveling at 45 mph toward a red light

6. ACCIDENTS INVOLVING HAZARDOUS MATERIALS (12 minutes)

NOTE: Drivers who transport hazardous materials will require additional training from carrier. Information provided here to alert drivers to that need and to inform them of general procedures for accidents involving hazardous materials.

Visual 16 Steps to Take When Accident Involves Hazardous Materials

Precautions Required Before Transporting Hazardous Material

- Driver must know nature of cargo and potential hazards
    - Cargo identified on bill of lading (see 5.2)
- Company must also provide training
    - About dangers from specific hazardous material
    - Steps to take if accident occurs with specific hazardous material
- Driver must assure vehicle is properly placarded (see also 5.1)
    - Placard identifies class of hazardous material
    - UN number on placard identifies specific material
- Driver must know who to contact in case of accident
    - Obtain and keep on hand names and telephone numbers for:
        - Police, fire, coast guard and other emergency numbers
        - State, local agencies or officials who must be contacted
        - Key personnel from shipper or carrier
        - CHEMTREC number for emergency information
            - Company will provide instruction
            - May appear on bill of lading

If Accident Involving Hazardous Material Occurs

- Follow basic accident scene protection procedures
- Use caution with flame producing warning signals
  - Keep away from leaking chemicals
  - Not allowed (illegal) with flammable or explosive cargo
- Do not allow people to congregate in vicinity of accident
- Keep fires, flames, cigarettes away, especially from flammables, explosives
- Keep upwind from poisonous or toxic fumes
- Do not touch chemicals or corrosives
- Try to prevent leaking liquids from running into highway, sewers, streams
  - Use damming, trenching techniques

Reporting Incidents Involving Hazardous Materials

- Hazardous materials incident report (Form 5800.1)
  - Carrier must complete for all spills or accidents involving hazardous materials
  - Must report within 15 days
  - Driver provides details for carrier to prepare incident report
- Inform DOT of serious accidents
  - Hazardous materials accidents or incidents involving
    - Death
    - Personal injury and/or $50,000 in property damage
  - Report immediately to DOT

Inform Coast Guard of Hazardous Materials Spills in Waterways

- All spills in waterways, including sewers, reported to Coast Guard
- Carrier will provide driver with additional training on all reporting procedures including emergency DOT and Coast Guard telephone numbers to call

Steps Driver Should Take Approaching Scene of Accident Involving Hazardous Material

- Drivers who do not transport hazardous material must still be alert to dangers when approaching or stopping at scene of accident
- Pay attention to type of hazardous material identified by placard
- Be alert to dangers posed by that material
  - Explosions
  - Fires
  - Fumes from poison or other toxic materials
  - Burns from chemicals or corrosives
  - Act accordingly
- If trained emergency personnel on scene, stay away

If no trained emergency personnel on scene
    Make sure they are called
    Render assistance if possible
    Keep vehicle clear of dangers from fire, explosions
    Keep clear of fumes, other chemical hazards
    In short, don't just jump into the scene when hazardous material involved in an accident
    Be aware of the dangers and act accordingly

7. REVIEW AND PROBLEM-SOLVING DISCUSSION (28 minutes)

Review of Key Points

- Follow safety procedures if involved in accident
    - Stop
    - Protect scene
    - Render assistance to injured
- Protect yourself and the carrier from future claims
    - Don't volunteer unnecessary information
    - Don't discuss who was at fault
    - Don't try to settle accident at the scene
- Report the accident promptly and properly
    - Follow company policy
    - Get all the facts to aid in future legal hearings
- Follow additional procedures called for by hazardous materials
- Keep a clean safety record
    - High frequency of accidents or involvement in preventable accidents could effect employment
    - Professional drivers first responsibility is to avoid accidents by safe, defensive driving habits

Problem Solving Discussion

Instructions

Ask students to read accident Situations A and B which are in their Student Manual, Unit 5.4, and are also presented on the following pages

Students Read Situation A First

- Instructor asks "Discussion Questions" to prompt short class discussion
- Ask for volunteers to present answers
- Probe or continue asking for volunteers until you get same or similar answer as indicated in "Answers to Discussion Questions" below

Repeat Discussion Procedure for Situation B

Situation A **(Reprinted from Student Manual)**

Driver A was making a right turn with his tractor-trailer. The driver of a subcompact car approaching from the opposite direction apparently did not leave enough side clearance and when she put on her brakes, she sideswiped into the rear of the trailer.

Driver A figured that the accident was very minor and also assumed that the woman driving was clearly at fault. There was no apparent damage to the trailer and little damage to the subcompact. The woman, however, was extremely upset because her expensive sunglasses were broken in the accident. While she wasn't hurt, she did complain that her neck was bothering her a little. To help calm the woman, Driver A told her not to worry, his company would probably pay for the glasses. And since there was only very minor damage and apparently no real injuries, both drivers exchanged license numbers, names and insurance information and drove away.

(End of Reprint from Student Manual)

Discussion Questions

How do you think Driver A handled himself at the scene of the accident?

Did he take any action(s) which might hurt him or his company later?
Did he fail to take any action(s) which might hurt him or his company later?

Answers to Discussion Questions

Even though the accident which occurred was very minor, Driver A made some significant errors at the scene. His bad judgment was probably prompted because he felt the accident was very minor and the other driver was "clearly at fault." Also the woman involved was upset. Company policy and common sense would have compelled him not to volunteer that his company would pay for the woman's broken glasses. This could be viewed as an admission that he was at fault. Second, he should have insisted that the woman receive prompt medical attention for her neck. Finally, he just drove away indicating that he did not see if the woman got medical attention and did not make any attempt to report the accident at this time.

Situation B **(Reprinted from Student Manual)**

Driver B was driving a tanker truck loaded with fuel on a foggy night. He spotted a fender bender on the highway and he pulled his rig off to the shoulder in order to give assistance. He left the rear end of the tanker about a foot from the paved portion of the highway, put on his four-way flashers and then dashed across to give assistance.

(End of Reprint from Student Manual)

Discussion Questions

Did the action(s) of Driver B present additional accident hazards?
If so, what were they?
What should he have done?

Answers to Discussion Questions

This situation actually occurred and resulted in a chain collision of 30 cars and a spectacular explosion.

In his desire to help others, Driver B actually presented a more dangerous situation than the one which existed. There was no way that he could have safely pulled his vehicle off the road, e.g., at a safe distance from the paved portion of the highway, protected by reflective triangles or flares. He should have proceeded ahead and informed the proper authorities about the circumstances and location of the accident he observed. While his motives were good, his actions were very dangerous.

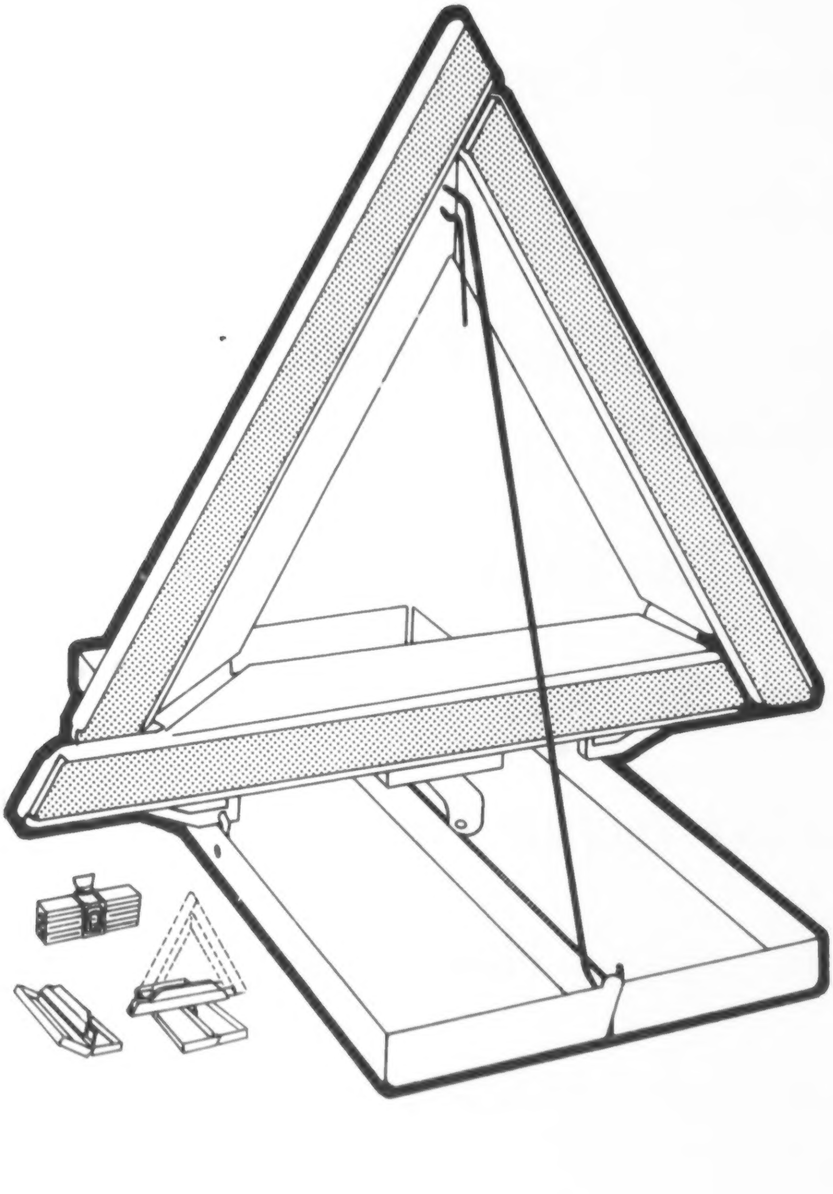
Visual 1

Steps to Take at the Scene of an Accident

- Stop
- Protect the Scene to Prevent Further Accidents
- Aid the Injured
- Notify Police and Call an Ambulance if Necessary
- Notify Your Employer
- Collect the Facts
- Conduct Yourself Properly
- Give Required Identification
- Remain at the Scene Until All Requirements Are Met

Visual 2

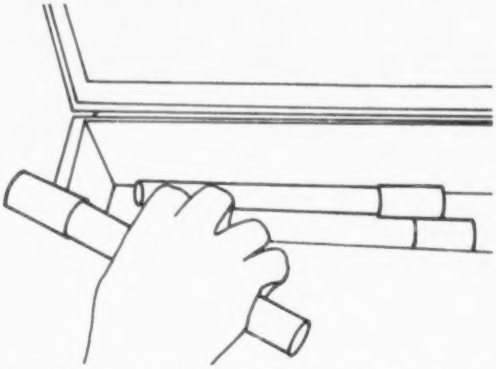
Emergency Reflective Triangles



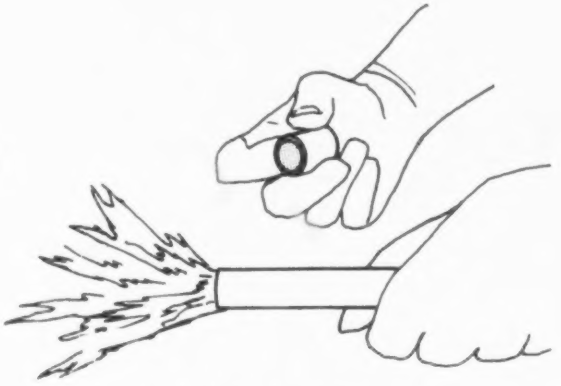
Visual 3

Use of Flares or Fusees

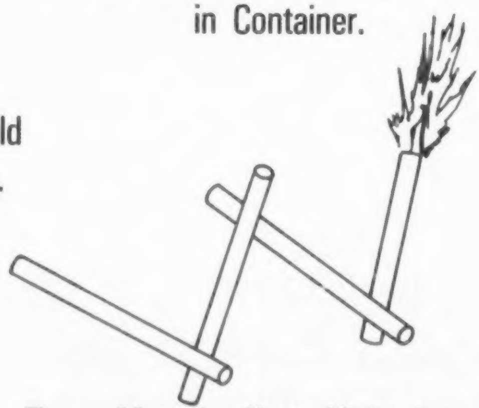
- Use With Caution
- Use W Pattern for Longer Burning Time
- Store Away From Moisture
- Do Not Use With Explosives or Flammables



Flares for Emergency Use Should Be Kept Dry, Away From Moisture in Truck Cab. Fleets Find It Best to Store Them in Container.



Flares Are Ignited by Striking the Cap Along the Striker Button on the Side. Hold Flare Well Away From Body or Clothing.

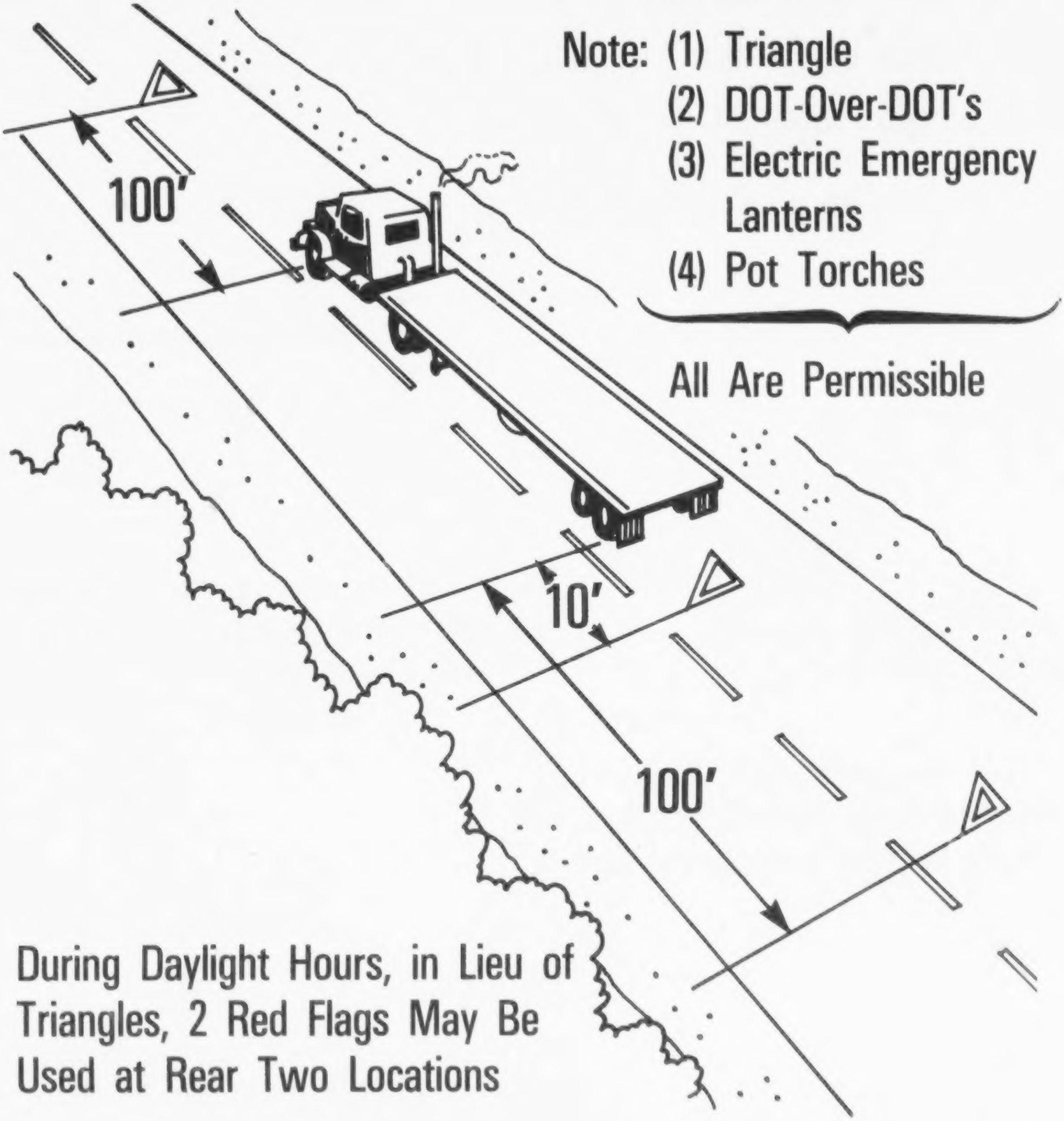


When Flares Must be Kept Alight for an Hour or Longer, Drivers May Arrange Them in W or Criss-Cross Pattern of Four.

Visual 4

Emergency Warning Devices

Two Lane or Undivided Highway



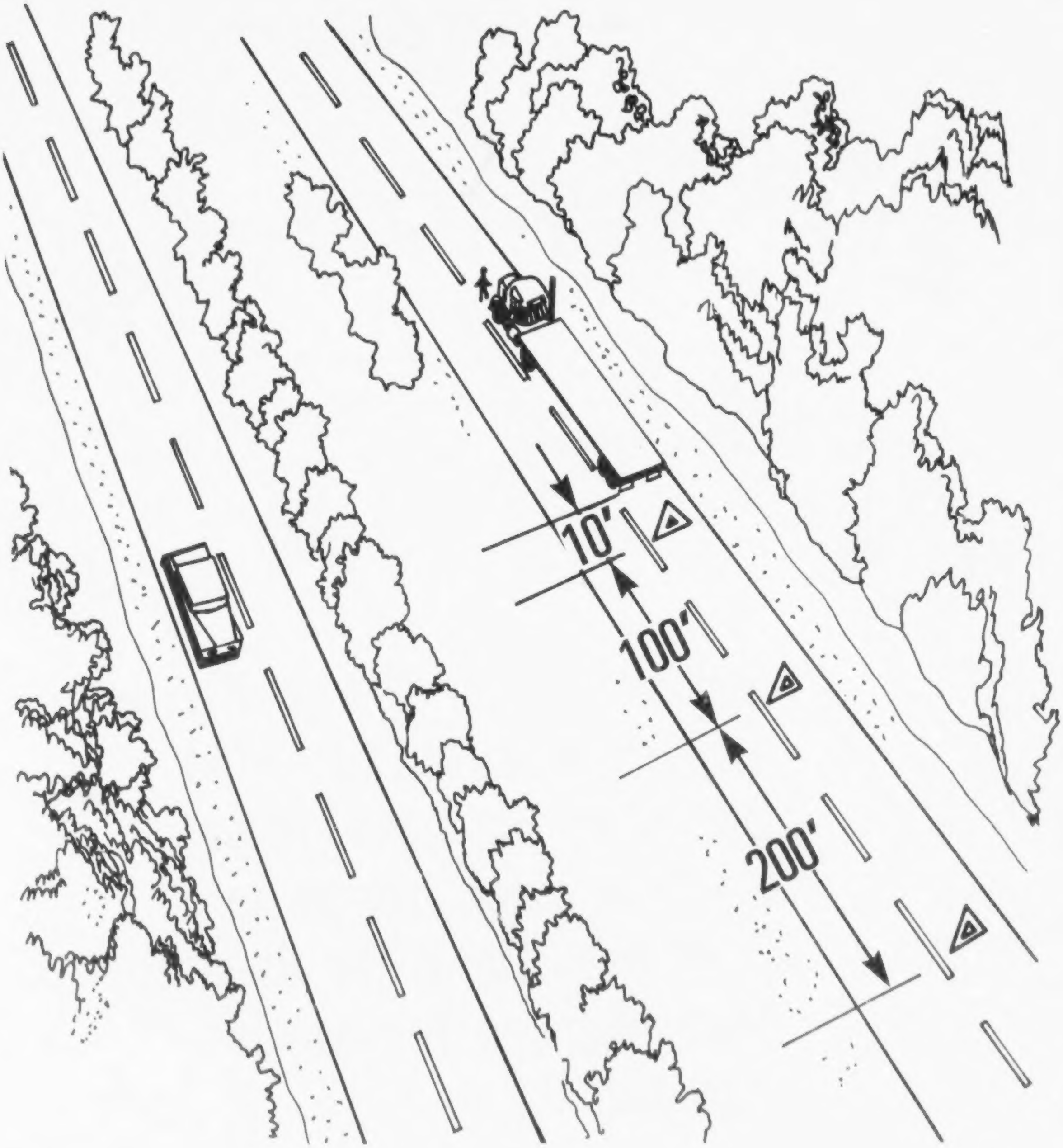
Note: (1) Triangle
(2) DOT-Over-DOT's
(3) Electric Emergency Lanterns
(4) Pot Torches

All Are Permissible

During Daylight Hours, in Lieu of Triangles, 2 Red Flags May Be Used at Rear Two Locations

Visual 5

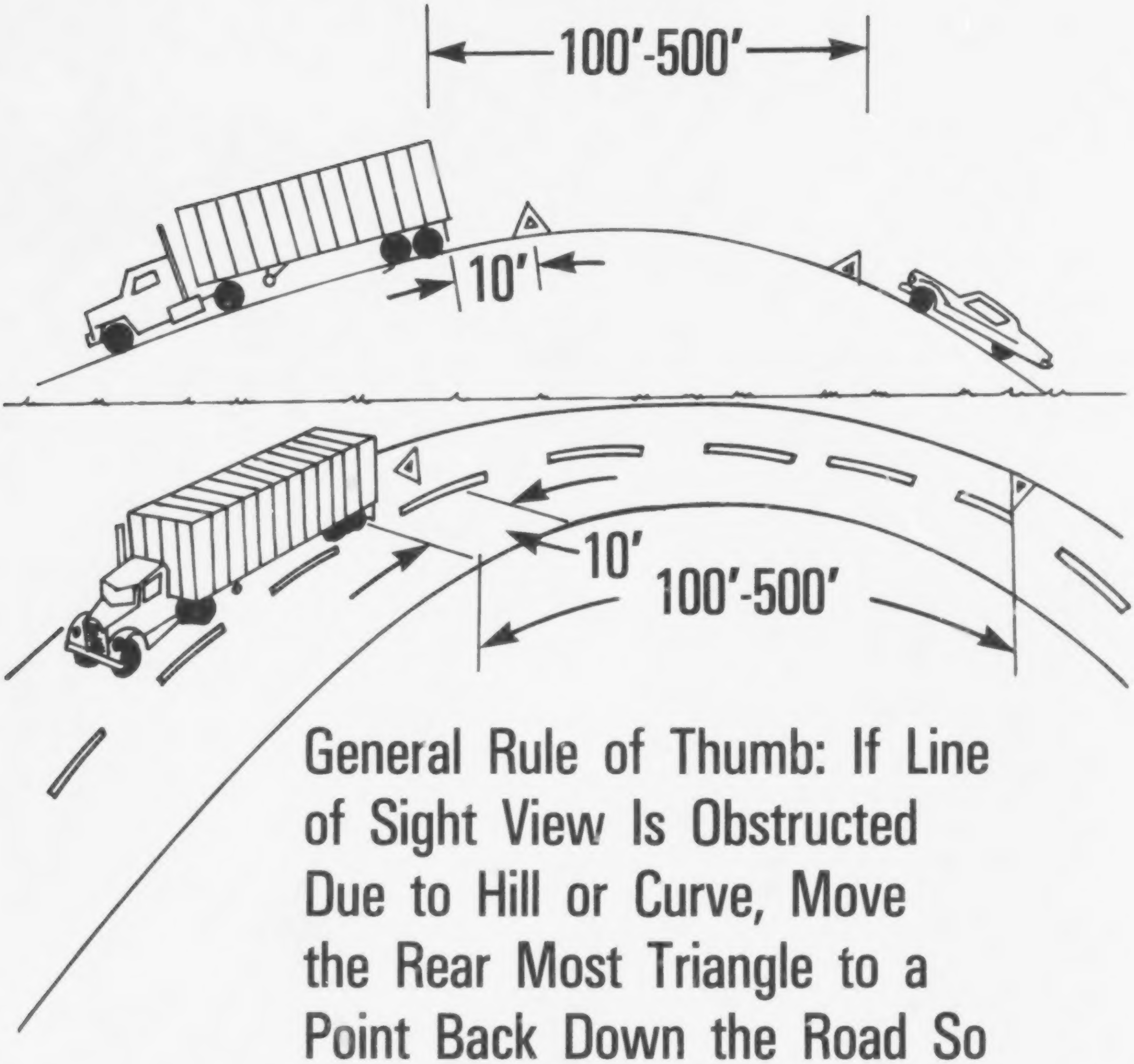
Emergency Warning Devices
One-Way or Divided Highway



Visual 6

Emergency Warning Devices

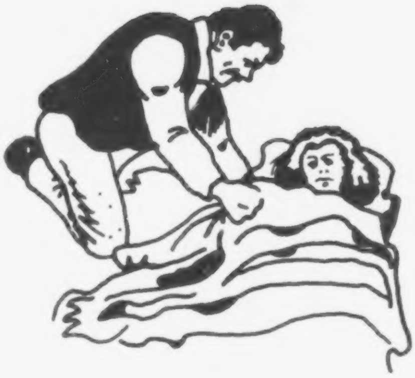
Obstructed View



General Rule of Thumb: If Line of Sight View Is Obstructed Due to Hill or Curve, Move the Rear Most Triangle to a Point Back Down the Road So That Adequate Warning Is Provided

Visual 7

Assist the Injured and Call for Help



Assist the Injured

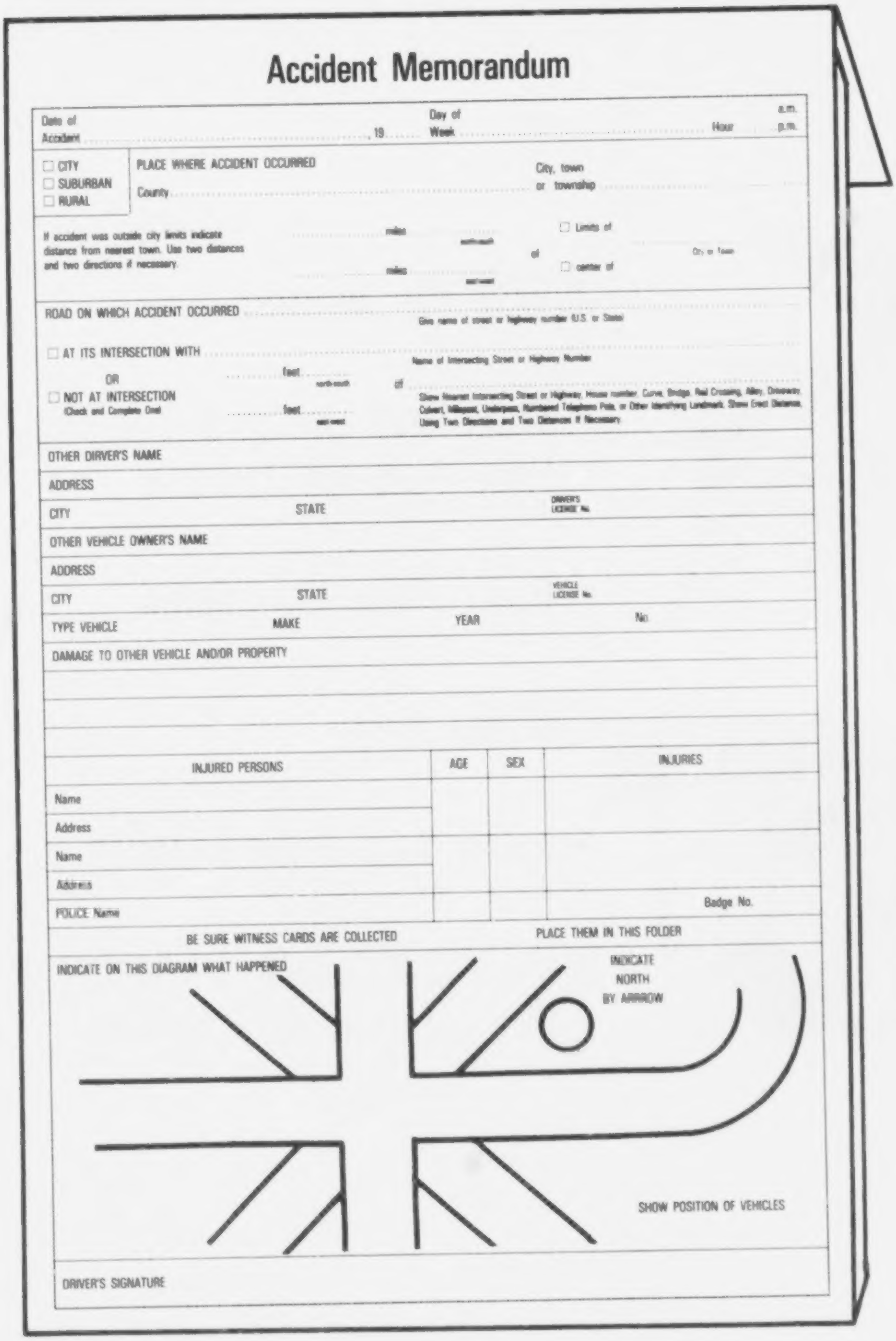
- Don't Play Doctor if You Don't Have First Aid Training
- Don't Move the Injured

Call for Help

- Know Your Exact Location
- Use CB Emergency Channel or Get Someone Else to Call

Visual 8

Sample Accident Report Packet



Accident Memorandum

Date of Accident .... 19...... Day of Week .... Hour ...... a.m. p.m.

☐ CITY
☐ SUBURBAN
☐ RURAL

PLACE WHERE ACCIDENT OCCURRED

County .... City, town or township ....

If accident was outside city limits indicate distance from nearest town. Use two distances and two directions if necessary.

.... miles .... north-south of ☐ Limits of .... City or Town

.... miles .... east-west ☐ center of

ROAD ON WHICH ACCIDENT OCCURRED .... Give name of street or highway number (U.S. or State)

☐ AT ITS INTERSECTION WITH .... Name of Intersecting Street or Highway Number

OR

☐ NOT AT INTERSECTION (Check and Complete One)

.... feet .... north-south of .... Show Nearest Intersecting Street or Highway, House number, Curve, Bridge, Rail Crossing, Alley, Driveway, Culvert, Milepost, Underpass, Numbered Telephone Pole, or Other Identifying Landmark. Show Exact Distance, Using Two Directions and Two Distances If Necessary.

.... feet .... east-west

OTHER DIRVER'S NAME

ADDRESS

CITY STATE DRIVER'S LICENSE No.

OTHER VEHICLE OWNER'S NAME

ADDRESS

CITY STATE VEHICLE LICENSE No.

TYPE VEHICLE MAKE YEAR No.

DAMAGE TO OTHER VEHICLE AND/OR PROPERTY

INJURED PERSONS	AGE	SEX	INJURIES
Name			
Address			
Name			
Address			
POLICE Name			Badge No.

BE SURE WITNESS CARDS ARE COLLECTED PLACE THEM IN THIS FOLDER

INDICATE ON THIS DIAGRAM WHAT HAPPENED

INDICATE NORTH BY ARROW

SHOW POSITION OF VEHICLES

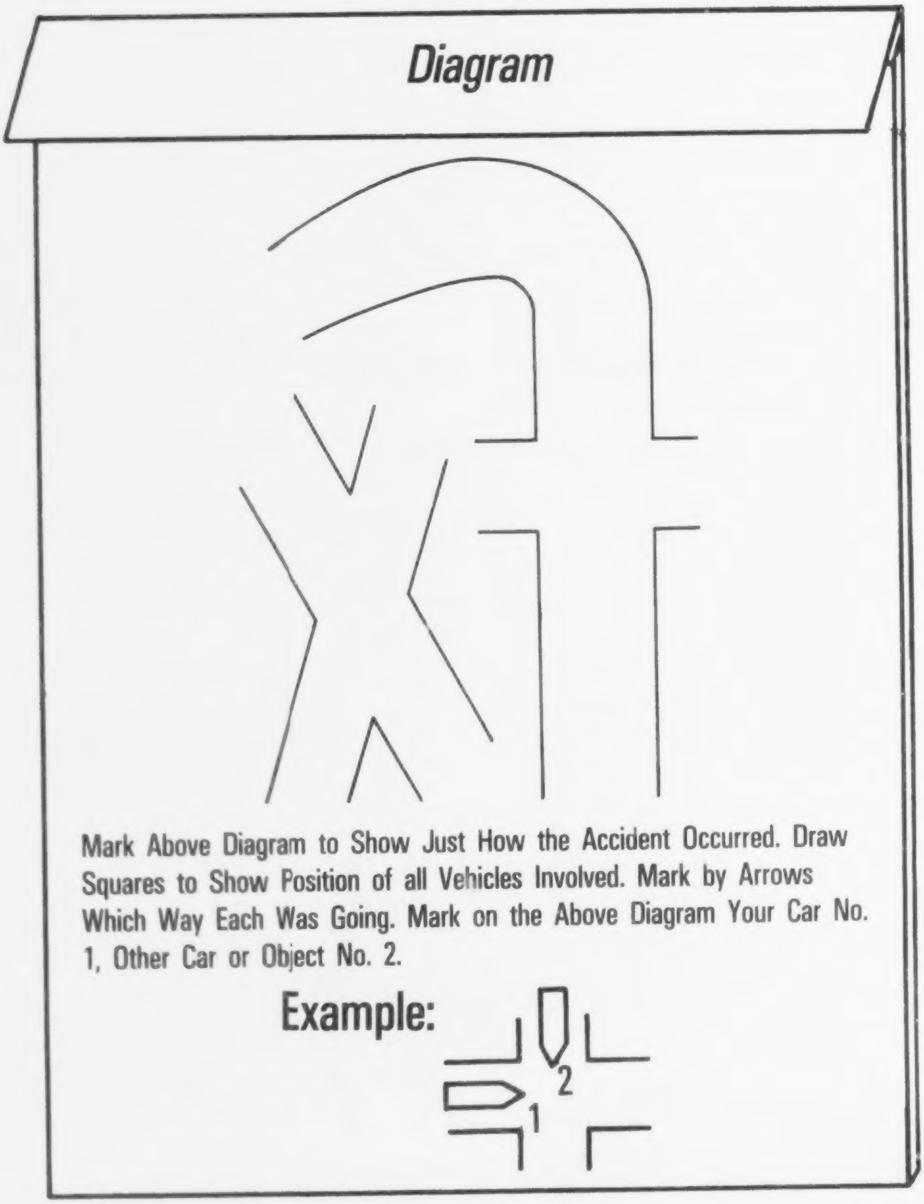
DRIVER'S SIGNATURE

Visual 9

Diagram the Accident Scene

Before Vehicles Are Moved:

- Draw a Picture or Diagram the Scene
- Take a Photograph



Mark Above Diagram to Show Just How the Accident Occurred. Draw Squares to Show Position of all Vehicles Involved. Mark by Arrows Which Way Each Was Going. Mark on the Above Diagram Your Car No. 1, Other Car or Object No. 2.

Visual 10

Obtain Witnesses

- Get Names and Addresses of Willing Witnesses
- Ask Them to Fill Out Witness Cards

Will You Kindly Favor the Driver by Filling in This Card?

Accident at ______________________________

(Show Street No. or Intersection)

Date ____________________ Time __________ ☐ A.M. ☐ P.M.

Did You See the Accident Happen? ☐ Yes ☐ No

Did You See Anyone Hurt? ☐ Yes ☐ No

Were You Riding in a Vehicle Involved? ☐ Yes ☐ No

In Your Opinion Who Was Responsible?

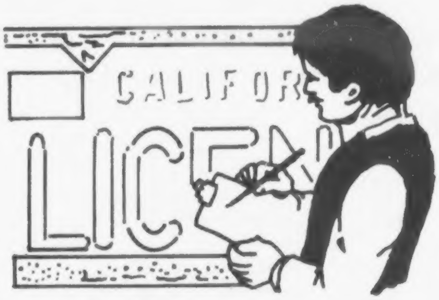
☐ Our Driver ☐ Other Driver ☐ Passenger ☐ Pedestrian

Name ______________________________

Address ______________________________

City & State ____________________ Telephone __________

Thank You



- Get License Numbers of Potential Witnesses

Visual 11

Remain at the Scene and Fulfill Your Responsibilities

- Conduct Yourself Properly
  - Be Polite
  - Don't Assess Blame or Admit Guilt
  - Don't Try to Settle the Accident at the Scene
- Give Required Identification
  - Name, Chauffeurs License Number, Vehicle Registration Number, Company Name and Address
  - Insurance Information if Required
- Remain at the Scene Until All Requirements Met
  - Call Your Company No Matter How Minor the Accident
  - Inspect Your Vehicle for Damage
  - Clean Up Broken Cargo
  - Get Further Instructions
    - Can Your Continue Safely?
    - Do You Need Replacement Vehicle?
    - Does Cargo Have to Be Transferred?

Visual 12

SUPERVISOR'S INVESTIGATION REPORT
MOTOR VEHICLE

The unsafe acts of drivers and the unsafe conditions that cause accidents can be corrected only when they are known specifically. It is your responsibility to ***find*** them and ***name*** them and to ***state*** the ***remedy*** for them in this report.

COMPANY Safe Company Trucking	TERMINAL OR DIVISION Tenth Street Terminal
DRIVER M. Peachy	TYPE OF VEHICLE IDENTIFYING NO. Single Truck
LOCATION OF ACCIDENT *(Street, town, state)* Tenth Street Terminal Yard	DATE AND TIME OF ACCIDENT February 6 8AM

NO. OF PERSONS INJURED AND EXTENT OF PROPERTY DAMAGE *(Company and other)*

No injuries.

Left rear fender (apx. $50.00 damage)

No damage to truck, bumper contacted car.

DESCRIPTION OF ACCIDENT *(State in detail what occurred just before, and at the time of the accident)*

Truck rolled away from loading dock, no chocks were placed at rear wheels. Truck was not in gear, parking brake was not securely set. (Truck brakes were out of adjustment.) Truck rolled apx. 10 feet and struck rear fender of parked car in yard. Car was parked illegally in yard.

UNSAFE CONDITION *(Describe unsafe conditions such as faulty brakes, lights, etc. contributing to accident)*

No chock blocks on truck.

Brakes out of adjustment.

UNSAFE ACT *(Describe the unsafe action of driver as turning from wrong lane, speeding, failing to signal, etc.)*

Brakes not secured when parked. Truck not in gear.

Car parked in truck area.

REMEDY *(As a supervisor, what action have you taken or do you propose taking to prevent a repeat accident?)*

Check truck dock for chocks. Require chocks at loading dock and stops.

Driver issued warning. Keep private vehicles out of loading area.

SUPERVISOR R. Ray	REVIEWED AND APPROVED BY	DATE REPORT PREPARED February 8

(Use reverse side for sketch and additional detail)

Carrier Accident Reporting Requirements

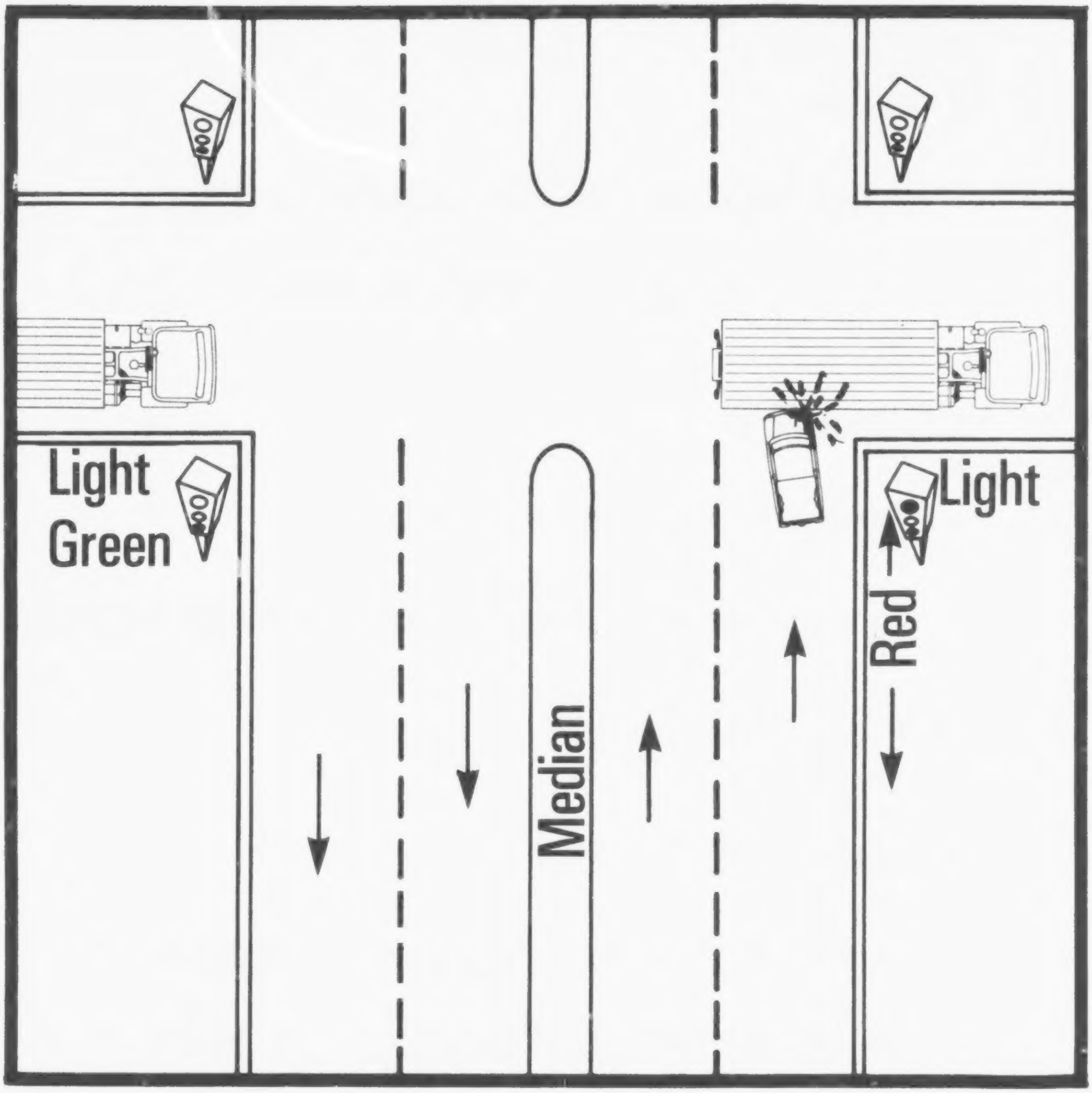
Report All "Reportable Accidents" (FMCSR 394)

- Reportable
  - Injury Requiring Medical Attention or Death.
  - Property Damage of $2,000 or More
- Non-Reportable
  - Getting In and Out of Vehicle
  - Loading/Unloading Cargo (Unless Hazardous Material)

Maintain Accident Records

- Identifies Unsafe Drivers:
  - Drivers With a High Frequency of Accidents
  - Drivers Involved in "Preventable" Accidents

Preventable or Not?


Light Green
Light
Red
Median

Preventable Vs. Nonpreventable Accidents

Basic Rule:

- Preventable–If There Was at Least One Thing, a Professional/Driver Could Have Done and Failed to

- Nonpreventable–Driver Took All Reasonable/Precautions to Avoid Becoming Involved in an Accident Producing Situation

- Rule May Seem a Bit Tough but as a Professional You Are Paid to Drive Safely This Means Without Accidents!

Visual 16

Accidents Involving Hazardous Materials

- Know Nature of Cargo and Its Dangers
- Have Instructions in Case of Accident
  - Names of Key Persons to Call
  - Names and Telephone Numbers to Report Accident
- Assure Vehicle Is Placarded Correctly
- Follow Basic Accident Scene Procedures
  - Take Extra Precautions
    - Use Caution With Flame Producing Warning Signals
    - Keep Cigarettes Away
    - Keep Upwind From Toxic Fumes
    - Don't Touch Chemicals or Corrosives
    - Prevent Leaking Onto Highway or Into Waterways
- Report Incidents Promptly
- Use Extreme Caution When Approaching Accident Involving Hazardous Material Cargo

LESSON 2 PRINCIPLES OF FIRST AID (CLASSROOM)

Overview

Time Allotted: 2 hours 30 minutes Minimum -- The preferred option (see below) requires 10 hours

Prerequisites: None

None for students. Instructor must be a certified First Aid practitioner or a guest lecturer who is certified must be used.

Purpose

The purpose of this lesson is to help students understand the need to learn basic First Aid techniques and to practice fundamental techniques related to serious bleeding, breathing stoppage and shock. The instructor will present information on each of these topics followed by a demonstration of the basic First Aid techniques required. Students will pair up and practice those techniques. The lesson ends with a short review quiz and discussion.

Optional (Preferred) Type of Training

American Red Cross -- 10 Hour course entitled "Essential First Aid and CPR." This is available as a complete kit and can be purchased through your local American Red Cross Chapter.

Materials

Instructional Aids

Visuals 1 - 9

Student Material

Basic First Aid Principles Checklist (and illustrations)

Instructor Material

American Red Cross 10-hour course, "Essential First Aid and CPR" if taught in house, if students are sent out to take course you do not need this training package

American Red Cross First Aid Training Manuals, you will need these if you elect to teach the following 2 hour, 30 minute lesson instead of the preferred 10-hour course

Literature from various first aid training course for students to examine

Copy of the "Good Samaritan" law of your State (if there is one in effect)

Copy of the "Uniform Good Samaritan Laws" as adapted by the American Association of Motor Vehicel Administrators

Equipment

Large size standard First Aid kit and extra supplies, e.g., bandages, splints, blanket for shock victim, etc.

Content

Activity or Topic	Approximate Time
1. OVERVIEW	10 minutes
2. EVALUATION OF INJURIES	5 minutes
3. EVALUATION AND TREATMENT OF BLEEDING	15 minutes
4. INSTRUCTOR DEMONSTRATION AND STUDENT PRACTICE	30 minutes
5. EVALUATION AND TREATMENT OF BREATHING STOPPAGE	15 minutes
6. INSTRUCTOR DEMONSTRATION AND STUDENT PRACTICE	35 minutes
7. EVALUATION AND TREATMENT OF SHOCK	15 minutes
8. INSTRUCTOR DEMONSTRATION	15 minutes
9. SUMMARY	10 minutes
	2 hours 30 minutes

1. OVERVIEW (10 minutes)

Know Your Role and Limitations

This lesson only introduces the student to basic principles and practices of First Aid

Additional training such as Red Cross course "Essential First Aid and CPR" is the minimum required to make student effective in emergencies

All professional drivers should take it upon themselves to complete a first-aid training course--will benefit their families, friends and co-workers

Visual 1 List of Basic First Aid Principles

Driver's Role

- Give aid and assistance at scene of accident
  - Stop and help when you spot an accident
  - If help is already there, then keep going and don't add to the congestion)

Driver Limitations

- Ability to provide assistance is limited by the driver's knowledge of first aid procedures and skill in using them
- Company policy
  - Be aware of State Good Samaritan laws which protect person giving aid
  - Be aware of limitations imposed by your company and State law

Basic Principles of First Aid

Definition: Immediate and temporary care given victim until professional help arrives

General Directions for First Aid

- Keep calm
- Do not move persons unless threatened by fire, heavy traffic, etc.
- Summon assistance
- Make the person comfortable
- Give immediate attention to most serious injuries
  - Bleeding
  - Stoppage of breathing
  - Shock
- Keep the injured warm
- Never give water or other liquids to an unconscious or partly unconscious person
- Keep spectators clear
- Talk reassuringly to the victim to keep him calm
  - Don't alarm him by discussing extent of injuries

Procedures to be Discussed and Practiced

Evaluation of injury and setting of priorities for treatment.
Evaluation and treatment of bleeding.
Evaluation and treatment of breathing stoppage.
Evaluation and control of shock

2. EVALUATION OF INJURIES (5 minutes)

Visual 2 Evaluation of Injuries

Three types of severe injuries require prompt treatment. Treat most severe and life threatening injuries first.

1. Severe Bleeding

   Person bleeding profusely may be dead in less than two minutes, e.g., human body only contains four quarts of blood.

2. Blocked Airway or Stoppage of Breath

   Most people can be saved if they start breathing on their own or artificially within 2 minutes.

   Breathing stopped for 5 minutes--only a 25 percent chance of saving the victim.

3. Shock

   Vital body functions are depressed.
   Death may result if not treated promptly even if injury that caused shock not severe enough to cause death.

3. EVALUATION AND TREATMENT OF BLEEDING (15 minutes)

Visual 3 Types of Bleeding

Determine Type of Bleeding and Amount of Blood Lost

Capiliary Oozing

Injuries to capillaries or small veins is indicated by a steady ooze of dark-colored blood

Venous Bleeding

Bleeding from a vein is indicated by a flow of dark- colored blood at a steady rate

Arterial Bleeding

Bleeding from an artery is indicated by a bright red blood, flowing swiftly in spurts or jets

This may sometimes be mixed wth venous bleeding, in which case the blood will be slightly darker in color.

Evaluating Severity of Bleeding

Blood dripping slowly from the wound is generally not serious and can be controlled.

Blood flowing in a small, steady stream or in small spurts may be serious and can be controlled.

Blood flowing in a heavy stream or in large spurts indicates a serious condition and aider must attempt to bring it under control immediately.

Summary

Bleeding needs immediate attention
Loss of even small amounts can cause shock

Visual 4 Example: Applying Direct Pressure to Control Bleeding

Control of Bleeding

Direct Pressure

- Apply dressing or pad directly over wound
- Use cleanest material available (preferably pad of sterile gauze)
  - Dirty cloth better than uncontrolled bleeding
- Apply direct, even pressure, using bare hand if necessary when bleeding is serious and when dressing is not immediately available
- Leave dressing in place
- Continue pressure by applying bandage
- Secure bandage in place, checking to be sure bandage is not too tight and thus cutting off circulation
- Elevate limb above heart level except when there is a possible broken bone
- Treat for shock
- If blood soaks through dressing, do not remove but apply more dressings

Visual 5 Arterial Pressure Points on the Human Body

Pressure Points

If direct pressure does not control bleeding, put pressure on artery (pressure point) closest to wound in need.

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Location of Pressure Point

Temporal artery--the temporal artery is located in the hollow just in front of the ear.

Facial artery--the facial artery is located in the small crevice about one inch from the angle of the jaw.

Carotid artery--located deep and back on each side of the Adam's apple.

Subclavian artery--located deep and down in the hollow near the collarbone.

Brachial artery--located on the inner side of the upper arm about three inches below the arm pit.

Femoral artery--located midway in groin between crotch and hip.

Tourniquet

Warning: Dangerous to use.
Causes tissue injury and stoppage of entire supply of blood below it.
    Result: gangrene and loss of limb.
Only use for severe, life-threatening hemorrhage.
Try to control first via direct pressure or arterial pressure.

Applying the Bandage

- Leave dressing on after bleeding controlled (even if saturated).
- Apply additional layers of cloth to form good sized covering.
- Bandage the wound snugly and firmly.
- Check to see if bandage is too tight.
  - Additional injury could occur.
  - Check for swelling around the wound.
    - Indicates bandage is interfering with circulation.
    - Loosen the bandage.

Treating for Shock

- Loss of blood can cause shock.
- If symptoms persist treat for shock.
  - Keep patient warm and quiet.

4. INSTRUCTOR DEMONSTRATION AND STUDENT PRACTICE (30 minutes)

Demonstration

- Call on one student to assist you.
  - Demonstrate these procedures:
    - Control of bleeding using direct pressure.
    - Location of six pressure points and application of arterial pressure to control severe bleeding at wrist.

Student Practice

Students should pair off to practice procedures.
Each pair of students should practice three procedures.
Each pair of students should take turns practicing three procedures:
- Control of bleeding using direct pressure.
- Location of six pressure points.
- Control of severe arterial bleeding at wrist.

Monitor and Assist Practice

5. EVALUATION AND TREATMENT OF BREATHING STOPPAGE (15 minutes)

Three Reasons Breathing May Stop:

1. Mouth or windpipe is blocked (by the tongue, blood, mucus or foreign materials, such as dirt).
   Victim appears blue.

2. Brain centers that control breathing have stopped (drowning, electrocution, head injury, or poisoning).
   Victim appears blue.

3. Lungs are prevented from expanding (obvious by looking at the chest).
   Indicated by sucking sound of the chest.

Visual 6 Mouth-To-Mouth Artificial Respiration

Artificial Respiration

Definition: Method of getting air into and out of person's lungs until he can breath for himself.

Why needed:
- Brain damage can occur after 4 minutes.
- Only 25 percent chance of living if breathing stops 5 minutes.

When needed:
- As soon as possible after natural breathing has been interrupted.
- When natural breathing is so irregular or shallow as to be ineffective.

Mouth-to-Mouth Method or Mouth-to-Nose Method

Simplest and most effective way to give artificial respiration.

Steps To Follow

- Place the person who has stopped breathing on his back
- Open his mouth and clear out foreign matter
  - Remove any food or dirt and false teeth
- Tilt head back so chin points upward
- Tilt lower jaw beneath and behind so it juts out
  - Helps move base of tongue does not block air passage to lungs
  - If this air passage blocked, no amount of effort will get air in
- Blow air into a person's lungs through his mouth or nose
  - Open mouth wide and place it tightly over person's mouth
  - Pinch his nostrils shut or close his mouth and place your mouth over his nose (Air can be blown into a person' mouth even through clenched teeth)
  - Blow into his mouth or nose
  - Continue to hold the lower jaw so it juts out to keep air passage open
    - With adults, usually blow into mouth
    - With children, can cover both mouth and nose
- Remove your mouth from victim's
- Turn head to side and listen for return of air outflow from lungs, if you hear air outflow, exchange of air has occurred
- Continue breathing for the victim
  - Blow vigorously into mouth or nose about 12 times a minute
  - Remove mouth after each breath and listen for air exchange
- If no air exchange
  - Turn person on side and strike him several times between shoulder blades with considerable force to dislodge obstructions in air passage
  - Check position of head and jaw
  - Double check to make sure no foreign matter in mouth

Return of normal breathing should occur in 15 minutes

- If normal breathing does not return continue process until medical aid arrives
- Electric shock and drug or carbon monoxide poisoning may require longer periods of artificial resparation

First Sign of restored breathing may be sigh or gasp

- Breathing may be irregular at first
- Continue artificial respiration until breathing becomes regular

Watch for relapse

- When normal breathing occurs, person usually recovers rapidly
- Be prepared for breathing stoppage again and repeat process

Visual 7 Back Pressure Type of Artificial Respiration

Back Pressure Arm Lift Method of Artificial Respiration

Second most desirable method

Use when injuries to head or face prevent mouth to mouth resuscitation

Steps

Place victim face down with his hands pressed in front of his face. Cradle head in hands.
Face victim--kneel at victim's head facing toward him.
Place hands on lower back.
Use rocking motion with smooth even pressure.
Release press.
Pull elbows of victim upward and toward first aider.
Repeat rocking motion.

6. INSTRUCTOR DEMONSTRATION AND STUDENT PRACTICE (35 minutes)

Demonstration

Call on one student to assist you
Demonstrate these procedures:
  Mouth to mouth respiration
  Back pressure arm lift method

Student Practice

Students should pair off to practice procedures.
Each pair of students should take turns practicing these procedures.
  Mouth to mouth respiration.
  Back pressure arm lift method.

Monitor and Assist Practice

7. EVALUATION AND TREATMENT OF SHOCK (15 minutes)

Visual 8 Signs of Shock

Evaluation of Shock

Danger of Shock

May cause death if not treated properly and promptly.
Even if injury that caused shock not severe enough to cause death.

Causes of Shock

Inadequate breathing
Excessive bleeding
Unsplinted fractures

Treatment of Causes of Shock Helps Correct Shock

Recognizing Shock

Easily recognized

Signs:

- Skin is pale and clammy with small drops of sweat around lips and forehead
- Victim complains of nausea and dizziness
- Pulse is fast and weak
- Breathing shallow and irregular
- Eyes dull with enlarged pupils

Visual 9 Treating Shock

Treatment of Shock

All seriously injured persons should be treated for shock (even if all symptoms do not appear).

Control of Shock

Have the injured person lie down

Elevate his feet and legs 12 inches or more
- Helps the flow of blood to his heart and head

If the person has received a head or chest injury, or if he has difficulty breathing, elevate his head and chest rather than his feet

Keep the person warm, but not hot
- Place a coat, jacket, newspapers, or any available covering under him
- Depending on the weather, cover him, i.e. on warm days or in a hot room, no covering is necessary
- Avoid getting him so hot that he perspires, this draws blood to the skin and away from the interior of his body where it is needed

If water is available, give him some every 15 minutes in small amounts if his condition permits
- If he is unconscious, do not attempt to give anything to drink
- If he vomits or is nauseated, postpone giving liquid until the nausea disappears

Keep the person quiet
- See that bleeding is controlled and injured parts are kept still
- Assure him that he will get the best care you can give
- Reassurance is a potent medicine

8. INSTRUCTOR DEMONSTRATION (15 minutes)

Demonstration

Call on one student to assist you.

Demonstrate a situation in which person is going into shock or is in shock.
- Treat the victim accordingly
- Student practice is not required
- Student should observe and answer questions as you treat the victim

9. SUMMARY (10 minutes)

Driver must know limits of his First Aid knowledge and ability
- When and when not to apply first aid
- Must know and follow company policy
- Know laws about treating victims
- Get additional training, e.g., Red Cross course

Allow time for student questions

Visual 1

Basic First Aid Principles

Know Your Role and Limitations

- Your Role
  - Give Aid and Assistance at Scene of an Accident
- Your Limitations
  - Knowledge and Skill in First Aid
  - Company Policies and State Law

Definition: Immediate and Temporary Care Given Victim Until Professional Help Arrives

Key Steps

- Keep Calm
- Do Not Move Persons Unless Threatened by Fire, Traffic
- Summon Assistance
- Make the Person Comfortable
- Check All Injuries and Look for Serious Signs
  - Bleeding
  - Stoppage of Breath
  - Shock
- Give Immediate Attention to Most Serious Injuries
- Keep the Injured Warm
- Don't Give Water to Unconscious or Partly Unconscious Person
- Keep Spectators Away
- Try to Calm the Victim

Evaluation of Injuries

Evaluate Injuries and Set Priority for Treatment

Three Types of Severe Injuries That Require Prompt Treatment:

- Severe Bleeding
  - Person Bleeding Profusely May Be Dead in Minutes
- Blocked Airway or Stoppage of Breath
  - Most People Can Be Saved by Artifical Respiration
  - If Breathing Stopped for 5 Minutes Only 25% Chance of Saving the Victim
- Shock
  - Vital Body Functions Are Depressed
  - Shock Can Cause Death Even if Injury Is Not Life Threatening

Visual 3

Types of Bleeding

Determine the Type of Bleeding and Amount of Blood Lost

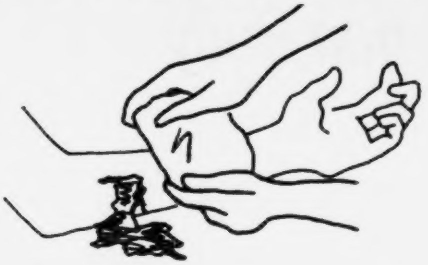
- Capillary Oozing
  - Injuries to Small Veins
  - Steady Ooze of Dark Colored Blood
- Venous Bleeding
  - Indicated by Flow of Dark Colored Blood at Steady Rate
- Arterial Bleeding
  - Indicated by Bright Red Blood Flowing in Spurts or Jets

Severity of Bleeding

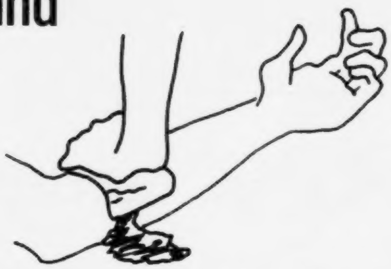
– Blood Dripping Slowly	– Not Generally Serious and Can Be Controlled
– Blood Flowing in Small Steady Stream or Small Spurts	– Serious but Can Be Controlled
- Blood Flowing in Heavy Stream or in Large Spurts	– Very Serious and Should Attempt to Control Immediately

Visual 4

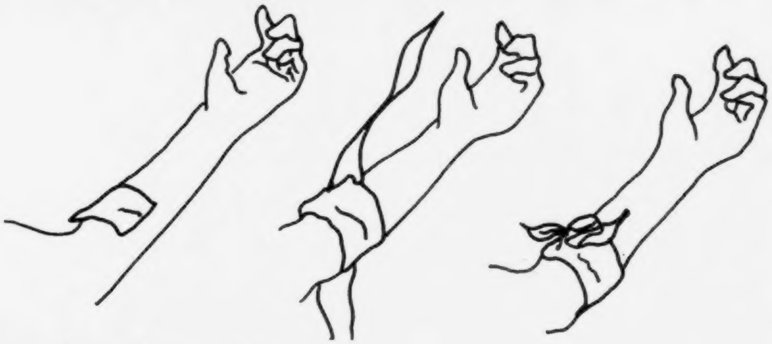
Apply Direct Pressure to Control Bleeding



1. Apply Dressing Pad or Bare Hand Over Wound



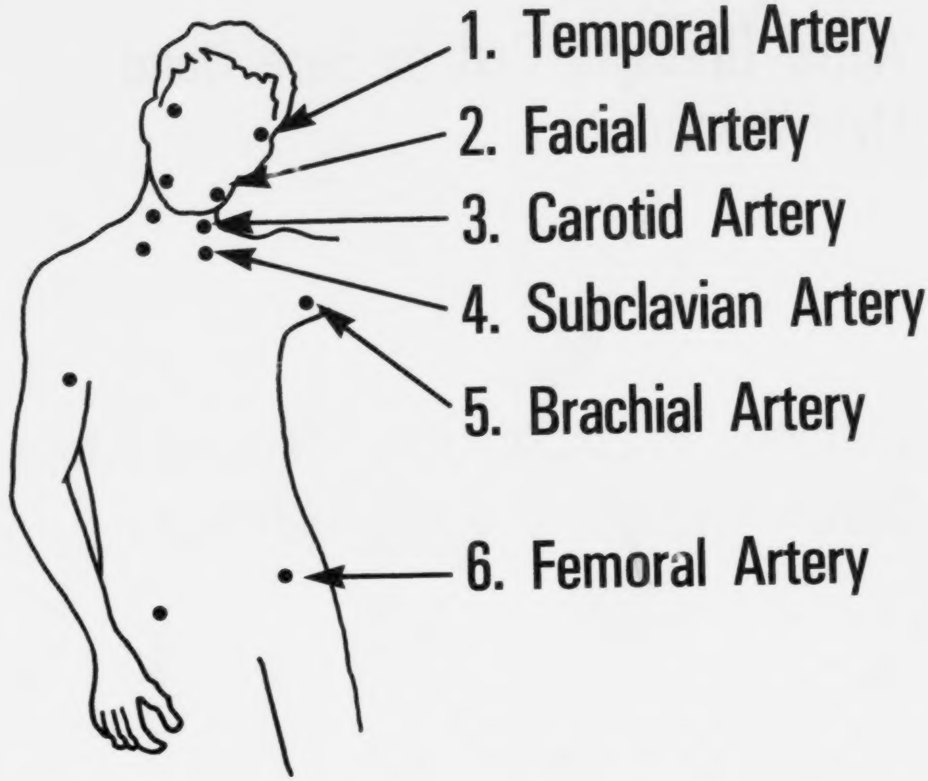
2. Continue Pressure Until Bleeding Stops or Slows Enough to Apply Bandage



3. Apply Bandage
   Check to See if It's Too Tight and Cuts Off Circulation

Visual 5

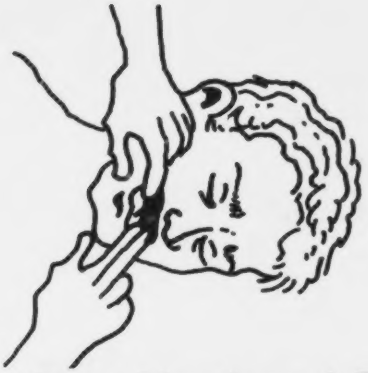
Arterial Pressure Points on the Human Body



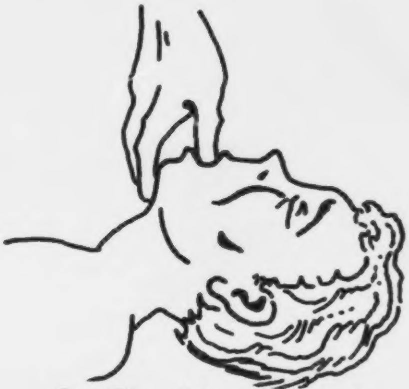
1. Temporal Artery
2. Facial Artery
3. Carotid Artery
4. Subclavian Artery
5. Brachial Artery
6. Femoral Artery

Visual 6

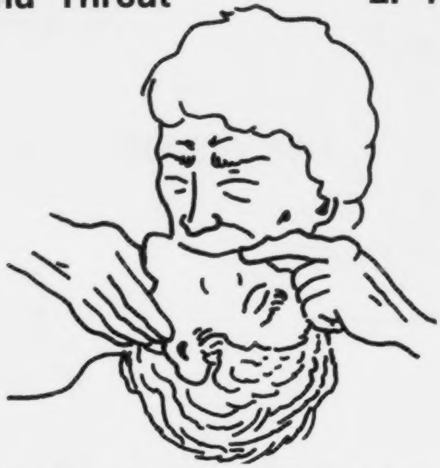
Mouth to Mouth Artificial Respiration



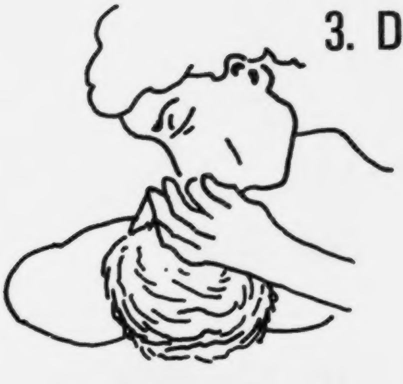
1. Clear Mouth and Throat



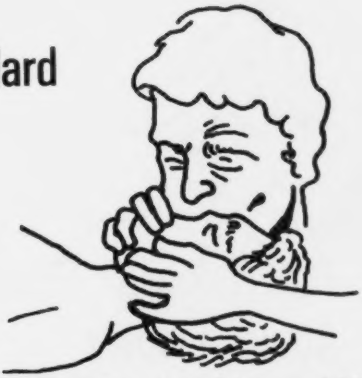
2. Tip Head Back



3. Don't Blow Too Hard



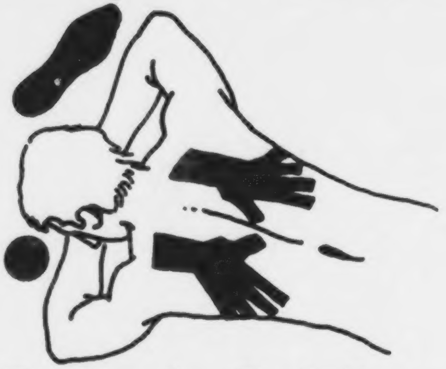
4. Pinch Nostrils



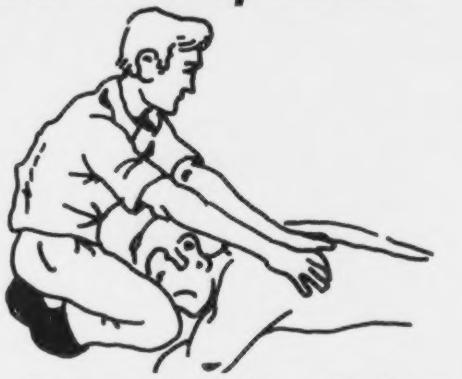
5. Use Mouth to Nose When Necessary

Visual 7

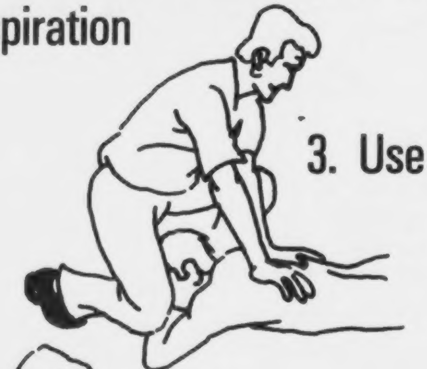
Steps in Back Pressure Respiration



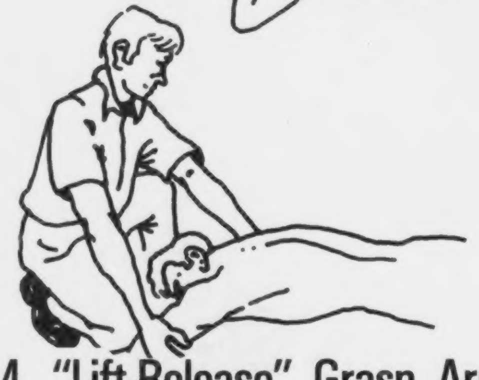
1. Position for Back Pressure Respiration



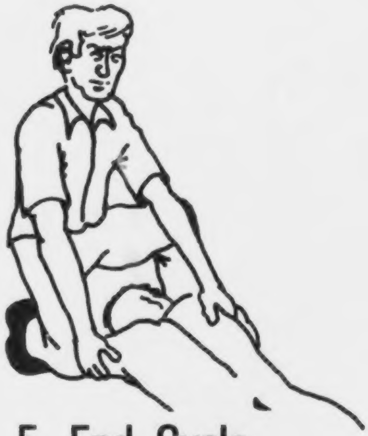
2. "Press-Release" Start Rocking Motion



3. Use Smooth Even Pressure



4. "Lift-Release" Grasp Arms Above Elbows

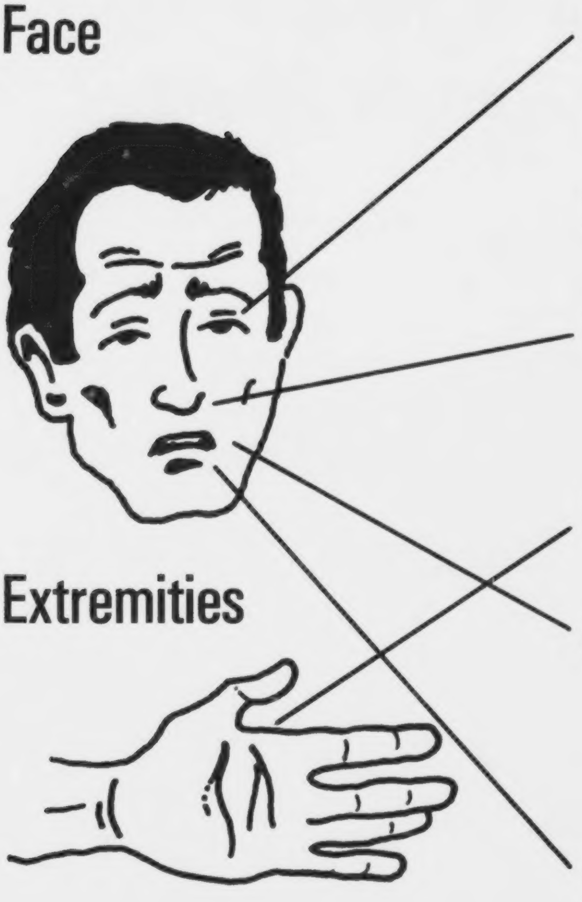


5. End Cycle

Use Only When Mouth to Mouth Method Is Not Possible

Visual 8

Signs of Shock



Face

Extremities

Eyes —Vacant
Lack luster

Pupils —Dilated

Breathing—Shallow
Irregular

Pulse —Weak or Absent

Skin —Pale
Cold
Moist

Nausea

Treating Shock

- Have Injured Person Lie Down
- Elevate Feet and Legs 12 Inches or More
  - Elevate Head and Chest for Head/Chest Injury
- Keep Person Warm
  - But Avoid Perspiration
  - Don't Need to Cover on Hot Days
- Give Water Every 15 Minutes
  - If Not Unconscious
  - If Not Vomiting
- Keep the Person Quiet
- Control Bleeding and Keep Injured Parts Still
- Give the Victim Assurance That Help Is on the Way

LESSON 3 FIRES AND FIREFIGHTING (CLASSROOM)

Overview

Time Allotted: 1 hour 15 minutes

Prerequisites: Unit 5.4, Lesson 1

Purpose:

The purpose of this lesson is to present fire prevention information and to discuss the use of common fire extinguishers.

Materials

Instructional Aids

Visuals 1 - 9

Student Material

Copy of the Federal Motor Carrier Safety Regulations

Basic Fire Prevention Steps, in Unit 5.4 of Student Manual

Fire Extinguisher Class Checklist, in Unit 5.4 of Student Manual

Fire Extinguisher Operation Checklist, in Unit 5.4 of Student Manual

Fire Extinguisher Insepction Checklist, in Unit 5.4 of Student Manual

Instructor Material

Copy of the Federal Motor Carrier Safety Regulations

Literature and manuals of various fire extinguisher manufacturer's for students to examine

Equipment

As wide a variety as possible, of the various types and models of fire extinguishers should be in the classroom for the instructor to use in discussion and for students to examine

Content

Activity or Topic	Approximate Time
1. CAUSES OF FIRES	15 minutes
2. BASIC PREVENTION	15 minutes
3. FIRE EXTINGUISHERS	20 minutes
4. FIREFIGHTING METHODS	25 minutes
	1 hour 15 minutes

1. CAUSES OF FIRES (15 minutes)

Scope of Problem

Second highest insurance claim for new vehicle damage
Wrecks and land catastrophies account for most damage and loss of life in insurance claims ($2.2 million a year)
Fires and fire damage are a close second
3/4 of a million dollars a year damage

Visual 1 Anatomy of a Fire

Anatomy of a Fire

Three elements required for combustion and resulting fire

Heat

Any source such as friction between rubbing tires, discarded cigarette, suns magnified rays, etc.

Fuel

The combustible material such as wood, paper, rubber, chemicals, etc.

Oxygen

Fires prevented if one of three elements missing
Example: Avoid friction between dual tires to eliminate heat source
Fires extinguished by removing any one of three sources
EXAMPLE: Ordinary trash fires extinguished by smothering to eliminate oxygen

Visual 2 Common Sources of Truck Fires

Truck Fire Sources

Accidents

Fires resulting from accidents most common source

Tires

Overheated tires common fire source
Low pressure, flat, build up heat
Dual tires "kissing" (rubbing together on rebound from bumps in the road) cause friction

Brakes

Excessive use of brakes on descending grades can create a progressive heat buildup
Heat transfers through conduction from the drum to the wheels
From the wheels to the hubs and tires
From the hub to the bearings and grease or oil
Sets the stage for severe burning

"Riding the brakes" or dragging brake linings.
    Creates heat buildup.
    Causes a tire to burn due to continuous friction.
Oil or dirt from the air brake compressor.
    Restricts air lines.
    Can become hot enough to ignite grease or oil.

Electrical System

Chafed, damaged or deteriorated insulation on wires can cause circuiting and create arcing.

Loose wire connection terminals create continuous arcing and starts fires.

Improper size fuse can cause overload and short circuit the system.

Metal contact with battery terminals (e.g., loose tools) or battery connections which can create severe arcing.

Dry, corrosive batteries with warped interior plates.
    Flammable and/or explosive gases to escape.
    Could be activated by someone smoking in the immediate area.

Exhaust System

Insufficient clearance between the exhaust piping and combustible parts of the vehicle.
    Absence of heat deflectors in vital areas of the system.

Bent or loose exhaust pipe outlet that has altered the flow of hot gases against a fuel tank or tire(s).

Parking vehicle in an area where high vegetation exists can cause the grass under the vehicle to burn due to direct contact with a hot exhaust system.

Fuel System

Failure to make metal contact with fuel line nozzle and tank spout when refueling can generate static charges from the flowing liquid.

Fuel spills from over filling the tank can create a widespread fire involving additional vehicles and adjacent objects or structures.

Filling tanks too full with cool fuel during hot weather causes expansion of the fuel in tank -- tank then overflows.

Loose fuel line connections causing continuous leaks, very susceptible to fire conditions.

Smoking during fueling operations ignites concentrated vapor.

Improper Uses of Fuses and Flares

Any combustible vapors or materials are subject to igniting
    Placed too close or under the vehicle.

Improperly capped and/or stored fusees can activate upon impact resulting from a vehicle accident or by jolting due to rough road surface.

Torch pot fluid containers can become deteriorated or punctured and flammable contents leak out.

Improper use of fusees to thaw out frozen brakes.

Spontaneous combustion of cargo.
    Cargo reacts to sudden heat change.
    Cargo not poperly protected from outside ignition source.
Improper use and/or securement of cargo heaters in van trailers (used to keep cargo from freezing in winter months).

2. BASIC PREVENTION (15 minutes)

Visual 3 Basic Fire Prevention Steps

General Rules

- Don't be careless.
- Pay particular attention to cigarettes.
- Watch ash, don't dispose of improperly.
- Look for potential fire hazards before the fire occurs.
  - Check during pretrip and correct potential fire hazards.
  - Monitor during trip.
    - Check mirrors for signs of smoke.
    - Be alert to strange odors.
    - Check tires each time you stop.
- Knowing how to prevent most common truck fires is part of a professional drivers job.

Accidents

Accident avoidance is also fire avoidance

Tires

- Check air pressure with a gauge on all tires before each trip.
- Check duals for proper spacing to make sure tires aren't "kissing each other" or parts of the vehicle.
- If hauling hazardous materials, the Federal Motor Carrier Safety Regulations require you to stop the vehicle in a safe location at least once each two hours or 100 miles of operation to examine tires.
- Remember an overloaded vehicle to cause rapid heat build-up in tires--overloaded tires can heat up to the danger point (approximately 250° F.) in only about 200 miles of operation.

Repair, replace or properly inflate all flat or soft tires before vehicle is driven.
Remove any overheated tire and place it at a safe distance from vehicle--do not put a hot tire in the spare rack and continue the trip.

Brakes
Make sure brakes are properly adjusted and release freely.
Make certain air lines are free from oil and dirt restrictions.
Select proper lower gear before starting down the hill.
Use proper braking technique.
Use vehicle retarder to keep brakes cool.

Lubrication System
Engine throwing oil.
Leaking brake seals can hit hot brakes, start a fire suddenly.

Electrical System
Be particularly alert for fire hazards during pre-trip inspection.
    Watch for chafed, damaged or loose wires.
Use proper fuse sizes.
Circuit breakers that keep tripping indicate an electrical problem. Do not keep resetting the breaker--get out and locate the source of the problem and get it fixed before it can cause a fire.

Exhaust System
Have damaged or loose exhaust piping repaired.
Make certain required heat deflectors inplace and secure.
Never park vehicle where exhaust can come incontact with vegetation or combustible materials.

Fuel System
Look for and correct leaks during pretrip inspection.
Complete fueling operation safely and legally.
    Don't smoke.
    Don't overfill tanks, not more than 95 percent capacity because of expansion.
    Follow rules for hazardous materials, e.g., no smoking, keep engine off.

Fusees and Flares
Keep away from vehicle.
Don't use with hazardous material.
Make sure they are stored safely on the vehicle.

Spontaneous Cargo Fires
Know potential for fire of cargo being hauled.
    Will get specific insructions from carrier about cargos, especially hazardous material.
Follow instructions from carrier.
Make sure cargo is packed safely and free from fire hazards.

Note: Ask students to read FMCSR 392.8, 392.24, 392.25, 392.50, 392.51, 392.67, 393.95, 397.5, 397.7, 397.11, 397.13, 397.15 and 397.17. Discuss and answer questions.

3. FIRE EXTINGUISHERS (20 minutes)

Visual 4 Example of Carbon Dioxide Fire Extinguisher

Key points drivers must know about fire extinguishers

- Basic equipment for controlling fire if it cannot be prevented
- Parts of fire extinguisher:
  - Locking pin
    - Prevents accidental discharge
    - Must be pulled out before using
  - Squeeze grip--squeezing causes discharge of carbon dioxide
  - Carrying handle--to carry extinguisher
  - Cylinder--holds liquid carbon dioxide
  - Syphon Tube--carries liquid carbon dioxide to hose
  - Hose--fastened to top of extinguisher to carry liquid carbon dioxide to discharge hose
  - Discharge Horn--directs carbon dioxide toward fire
- To use safely, must know:
  - Limitations of fire extinguisher
  - Classes(es) of fire it can be used on
  - Capacity
  - Method of operation
  - Techniques for safe use

NOTE: In this case the discharge action creates instant sub-freezing cold--operators hand can "freeze" to the discharge horn unless grasping insulated handle.
Maintenance and inspection to make sure its ready when needed

Visual 5 Classes of Fire

Classes of Fire

Instruction on fire extinguisher indicates class(es) of fire it is intended to fight.
Four basic classes of fire:

Class A
- Most common type.
- Ordinary combustibles (paper, wood, cloth, trash).

Class B
- Fire fueled by flammable liquids (gasoline, oil, grease, paint).
- Extinguished by smothering, preventing oxygen from reaching source.

Class C
- Occurs in live electrical equipment (motors, switches, appliances).
- Controlled by nonconducting extinguishing agent.

Class D

Highly reactive combustible metals (magnesium, titanium)
Controlled by the use of special extinguishing powers
Do not use Type A, B or C extinguishers as it could cause an explosion

Visual 6 Fire Extinguisher Types and Use by Class of Fire

Types of Fire Extinguishers

FMCSR 393.95 as previously reviewed requires that commerical vehicles, (including tractor-trailers), used in interstate or foreign commerce be equipped with properly rated fire extinguisher(s).
Driver must be familiar with type of fire extinguisher and classes of fire it is design to combat.

Examples of Fire Extinguishers and Class of Fire

Fire Extinguisher	Type of Fire
Regular dry chemical	B, C
Multi-purpose dry chemical	A, B, C, or B, C
Purple-K dry chemical	B, C
KCL dry chemical	B, C
Dry Power special compound	D
Carbon Dioxide (gas)	B, C
Halogenated agent (gas)	B, C
Water	A
Water with anti-freeze	A
Water, loaded stream type	A, B
Foam	B, some use on A

Capacity

Most of the fire extinguishers found in tractor-trailers are the regular dry chemical type and have limited capacity, they can be used up quickly, so care must be taken not to waste contents.
Capacity and length of discharge indicated on name plate.

Visual 7 Steps in Operating a Fire Extinguisher

Operation

- Read and understand before a fire occurs.
  - Instructions appear on nameplate of fire extinguishers.
- Hold firmly and be prepared to pressure.
  - Most fire extinguishers discharged by pressure.
  - On CO_2 types, grasp handle in proper spot or else hand will stick to nozzle.
- Aim at base of flames.
- Make maximum use of length.
  - Know the length of discharge for each type.
  - Stay as far away from fire as possible.
- Stay away from source of fuel.
- Use slow side to side sweeping motion.
- Keep the wind at back, if possible to avoid inhalation of smoke and fumes.
- Watch out for flareups and flashbacks.

Visual 8 Inspect Your Fire Extinguisher

Inspection

- Fire extinguisher can't be used unless available and ready.
- Common sense and FMCSR require inspection of fire extinguishers as part of pretrip.
- Examine the fire extinguishers for the following.
  - Be sure it is fully charged.
  - Look for obstructions in the nozzle.

Recap

- Make sure truck has proper kind of fire extingishers(s) and are fully charged.
- Know how to operate fire extinguisher before a fire occurs.
- Use safe and efficient techniques to get the most out of fire extinguishers and avoid dangers of smoke and fire.

4. FIREFIGHTING METHODS (25 minutes)

Basic rules to follow when a truck fire occurs:

- If vehicle underway, attempt to get off travelled portion of highway before stopping.
- If water supply or fire department can be reached, get to them and ask for help but don't try to travel any extended distance.

- Never take chances fighting a fire which could endanger driver's safety or life.
- Use proper technique for type of fire.

Visual 9 Fire Fighting Methods

Techniques for Specific Kinds of Fires

Engine Fires

- Shoot extinguisher material through hood louvers, radiator or up under engine.
- Open hood as little as possible to prevent air from air reaching fire.

Electrical Fires

- Disconnect battery cables as soon as possible to cut off power and prevent reignition.
- Do not use water on electrical fire as it can conduct electrical current.

Fuel Fires--Do not use water on oil fire, it will only spread it.

Cargo Fires

- Usually discovered in closed van by seeing smoke escape around doors.
- Do not open doors until unit moved to safe spot where help can be obtained.
  - Fires in closed vans will only smoulder due to lack of oxygen.
- Cautiously open door and remove cargo until source of fire is located. (Never open doors until fire department arrives).
- Do not allow fire department to pour water on cargo unless absolutely necessary.
  - Drivers responsibility to prevent unnecessary cargo damage.
- If fire in trailer gets out of control, may be able to unhook tractor and save it.

Tire Fires--Check for heated tires and tire fires enroute

Heated Tires

- Feel tires by touching back of hand while truck is at rest or refueling stop.
- If heated tire discovered, apply water until tire and wheel are cooled.
- If water not available, stop until tire is cool.
- Continue checking tire pressure and heat temperature at frequent intervals.

When Tire Fire is Discovered

- Don't--
  - Try to drive it off by going fast and letting burning tire throw itself off the rim.
  - Pull into a service station as a disastrous explosion could result.
- Handle as follows--
  - Use large quantities of water until tire and wheel assembly are cool to touch. (Putting out the flames is not enough).

- Fire department best source of water, if possible back vehicle into a small creek or stream (to immerse burning tire(s) in water.
  - As soon as tires can be handled, remove to location away from vehicle.
  - If quantities of water not available, try to smother flames with fire extinguishers, dirt, snow, mud, and remove tires as soon as possible.
  - When carrying hazardous material, extra important if cargo is explosive or flammable to get tire off to prevent spread of fire.

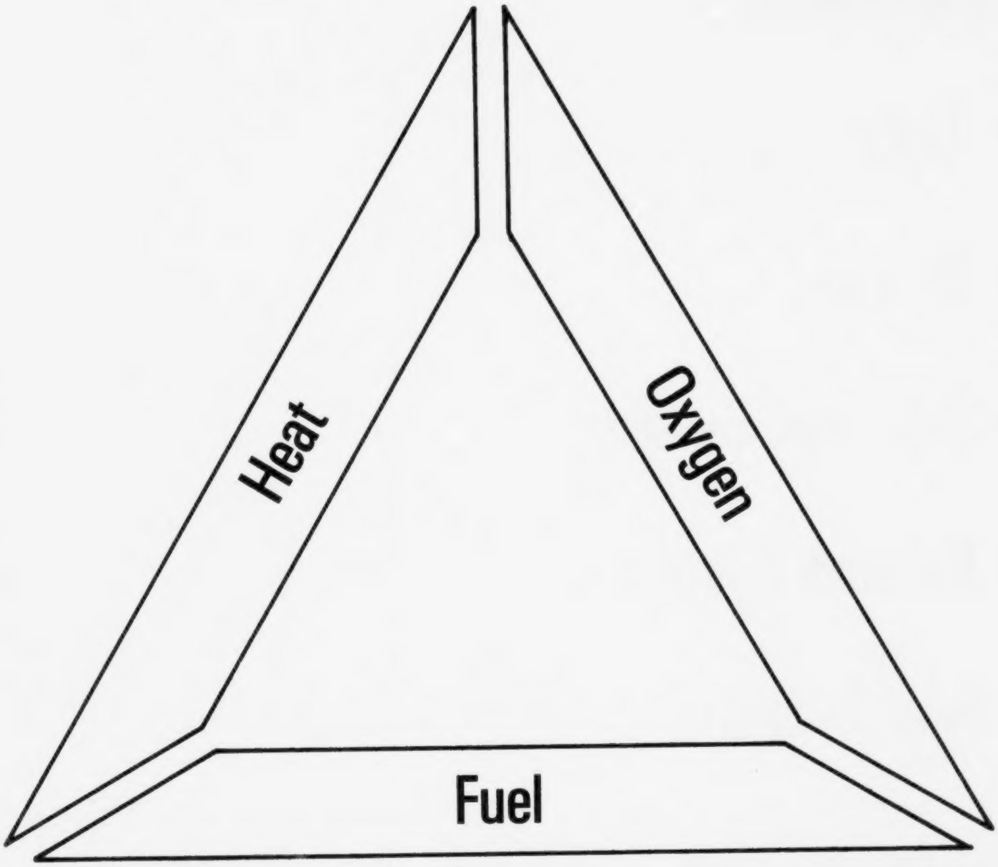
Preview of Firefighting Demonstration

- Inform students of lab activity in which they can observe extinguishing of small pan fire.
  - Fuel fire ignited in pan in safe area.
  - Extinguished by instructor or member of fire department with proper fire extinguisher.
  - Students will observe from safe distance and ask questions, then will be allowed practice in discharging a fire extinguisher.

Allow Time for Student Questions

Visual 1

The Anatomy of a Fire



- Remove Any Leg of the Triangle and You Prevent a Fire
- Whenever There Is a Fire Remove Any One Leg and the Fire Will Be Extinguished

Common Truck Fire Sources

- Accidents
- Tires
- Brakes
- Electrical System
- Exhaust System
- Fuel System
- Improper Use of Fusees and Flares
- Spontaneous Combustion of Cargo
- Improper Use/Securement of Cargo Heaters

Visual 3

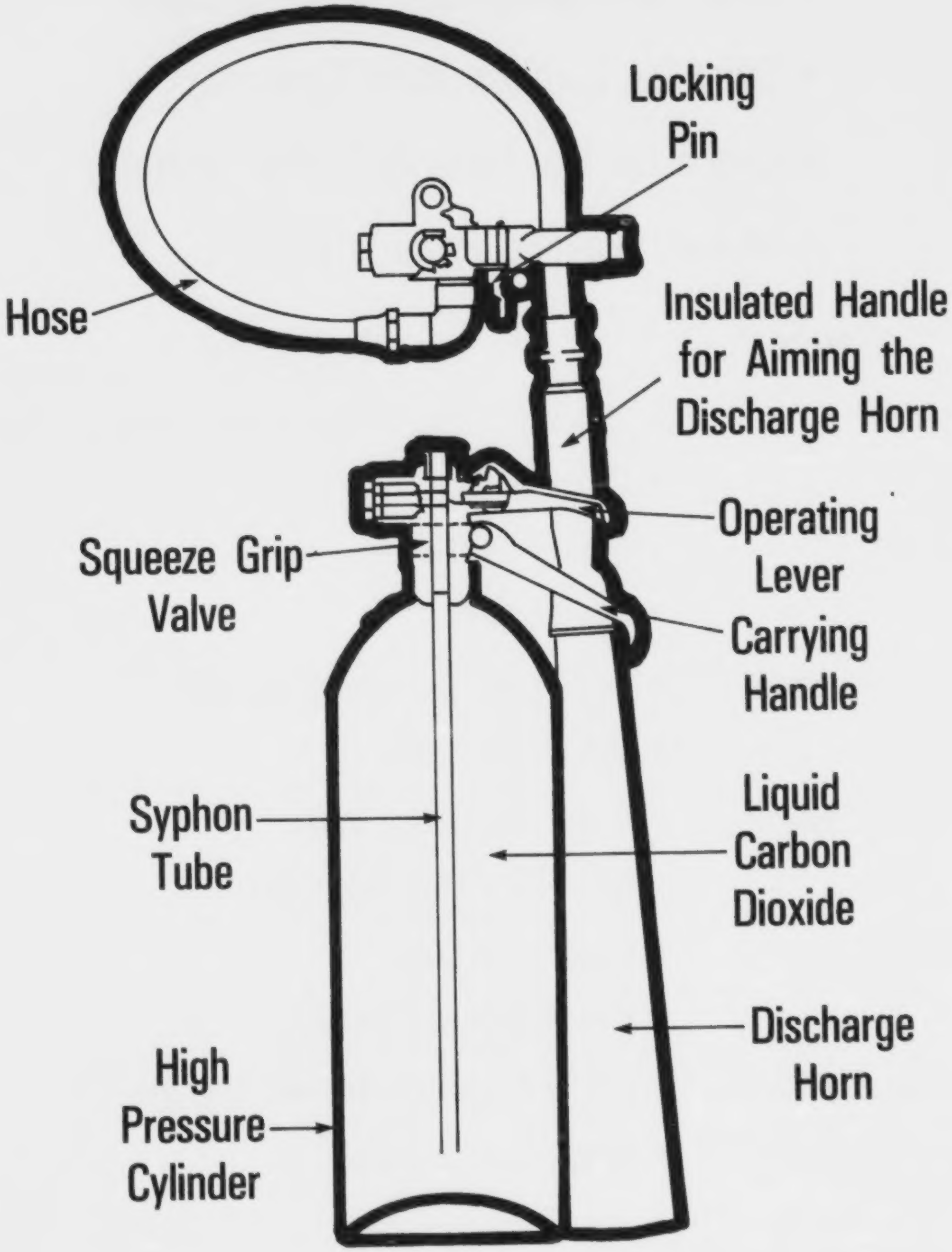
Basic Fire Prevention Steps

- Drive Defensively and Avoid Accidents
- Don't Be Careless With Cigarettes
- Check for Fire Hazards During Pretrip
- Monitor for Fire Hazards Enroute

Cause	*Prevention*
Tires	• Check for Low Pressure and "Kissing" Duals • Check at Each Stop
Brakes	• Inspect for Fire Hazards • Use Properly
Electrical System	• Inspect for Damage or "Shorts" • Use Proper Fuses
Exhaust System	• Inspect for Loose Parts • Don't Park Over Vegetation
Fuel System	• Inspect for Leaks • Fuel Safely and Legally
Fusees and Flares	• Follow Rules for Use and Storage
Cargo Heaters	• Follow Carrier Rules

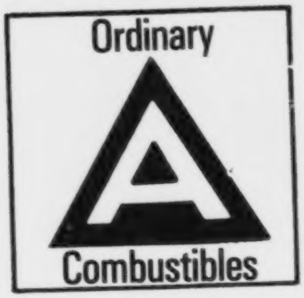
Visual 4

Example: Carbon Dioxide Fire Extinguisher

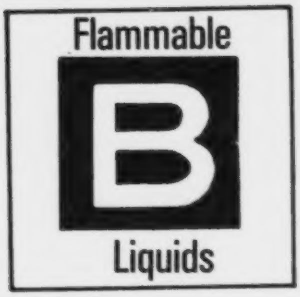

Locking Pin
Hose
Insulated Handle for Aiming the Discharge Horn
Operating Lever
Squeeze Grip Valve
Carrying Handle
Syphon Tube
Liquid Carbon Dioxide
Discharge Horn
High Pressure Cylinder

Visual 5

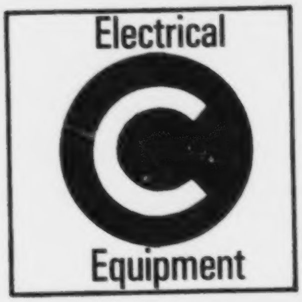
Classes of Fires


Ordinary
A
Combustibles

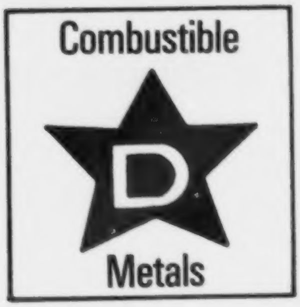
A. Wood, Paper, Ordinary
Combustibles
Extinguish by Cooling and
Quenching
Use: Water or Dry Chemicals


Flammable
B
Liquids

B. Gasoline, Oil, Grease, Other
Greasifying Liquids
Extinguish by Smothering, Cooling,
Heat-Shielding
Use: Carbon Dioxide or Dry
Chemicals


Electrical
C
Equipment

C. Electrical Equipment Fires
Use Nonconducting Agents: Carbon
Dioxide or Dry Chemicals
DO NOT USE WATER


Combustible
D
Metals

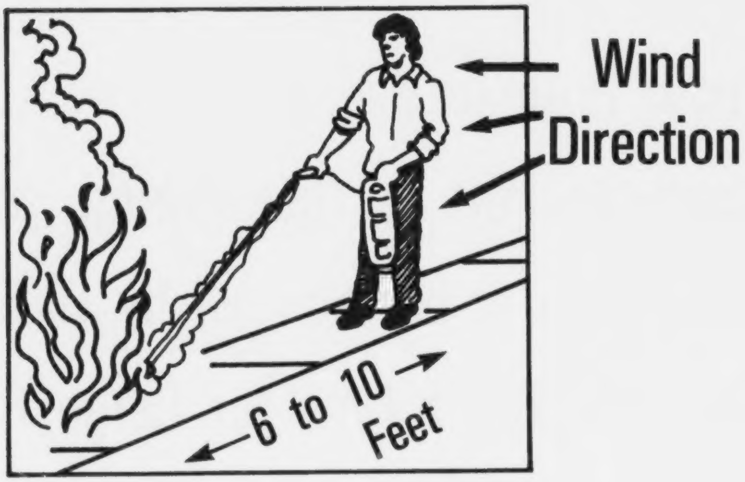
D. Fire in Combustible Metals
Use: Specialized Extinguishing
Powders

Visual 6

Fire Extinguisher Type	*For*	*Class of Fire*
Regular Dry Chemical		B,C
Multi-Purpose Dry Chemical		A,B,C, or B,C
Purple-K Dry Chemical		D
KCL Dry Chemical		B,C
Dry Powder Special Compound		D
Carbon Dioxide (Gas)		B,C
Halogenated Agent (Gas)		B,C
Water		A
Water With Anti-Freeze		A
Water, Loaded Stream Style		A,B
Foam		B, Some Use on A

Steps in Operating a Fire Extinguisher

- Read and Understand Instructions BEFORE a Fire Occurs
- Be Prepared for the Discharge
- Hold It Firmly
- Aim at Base of the Flames
- Make Maximum Use of Length
- Use Slow Side to Side Sweeping Method
- Stay Away From Fuel Source
- Watch for Small Pockets of Flareups or Flashbacks
- Keep Wind at Your Back to Avoid Flames, Gases and Smoke



Visual 8

Inspect Your Fire Extinguisher

☑ Check for Proper Weight

☑ Guage/Indicator Showing Its in the Operable Range

☑ Safety Seals Intact

☑ Properly Mounted in Bracket

☑ No Damage, Rust, Dirt

☑ No Nozzle Obstruction

Then Be Sure You–

- Know How to Use It
- Check as Part of Your Pretrip Inspection
- Remember It Is Required by FMCSR
- Have the Right Type for Cargo Being Hauled

Visual 9

Firefighting Methods

- Attempt to Get Off Highway Before Stopping
- Notify Fire Department
- Don't Risk Your Life

Type of Fire	*Precaution*
Engine Fire	Don't Open Hood Wide
Electrical Fire	Disconnect Battery Cables
Fuel Fires	Don't Use Water on Oil
Cargo Fires	Open Door Cautiously Remove Cargo Until Source Found
Tire Fires	Check for Heated Tires and Cool Them Don't Drive With Tire Fire Don't Pull Into Service Station Do Cool With Water and Remove Tire

LESSON 4 FIREFIGHTING DEMONSTRATION (LAB)

Overview

Time Allotted: 45 minutes

Prerequisites: Unit 5.4, Lesson 3

Purpose:

The purpose of this lesson is to demonstrate the use of a fire extinguisher. If possible, contact the local fire department and have them conduct this demonstration. Normally these departments are very cooperative and anxious to help, and if your area requires an open fire permit they can aid in securing it for you--or with their participation a permit may be required.

Materials

Equipment

Shallow metal pan with 1-2 gallons of kerosene or diesel fuel in it.
Fire extinguishers capable of extinguishing Type B fire.

Facilities

Safe area away from buildings or vehicles where you can start a small controlled fire in a metal pan.

Content

Activity or Topic	Approximate Time
1. DEMONSTRATING USE OF FIRE EXTINGUISHER	45 minutes

1. DEMONSTRATING USE OF FIRE EXTINGUISHER (45 minutes)

Purpose

To demonstrate use of fire extinguishers to a group of 8-12 students.

Layout

Area away from buildings or other potential fire hazards.

Directions

This exercise is simply a demonstration of fire extinguisher equipment. There is no student participation except for observation until after fire has been put out.

Procedures

Review instructions on nameplate of extinguishers with students
Explain the steps for use of this extinguisher
Station yourself 6-10 feet from pan--upwind from the pan
Station students behind you
Ignite fire in pan of kerosene or diesel fuel by tossing ignition source into it
Put out the fire
Be 6-10 feet from fire
Hold extinguisher firmly and discharge
Use slow sweeping method
Aim at base of fire--not at flames
After fire has been extinguished, allow students practice discharging the extinguishers in to the pan as is required to extinguish fire, make practice realistic by reinserting safety pins, etc.
There is no student rating for this lesson, except for observation, questions and answers

Notes:

UNIT 5.5
PERSONAL HEALTH AND SAFETY

UNIT 5.5 PERSONAL HEALTH AND SAFETY

PURPOSE

The purpose of this unit is to enable students to recognize the basic on-duty and off-duty health and safety requirements for driving a tractor-trailer.

OBJECTIVES

Performance Objectives

Students must

- avoid use of alcohol and drugs that affect driving functions prior to operating a truck.
- use proper diet, exercise, and rest to remain alert while driving.
- minimize fatigue through proper rest while off-duty and use of rest stops enroute.
- obtain regular vision, hearing, and health checkups.
- use seat belts and other personal protection gear appropriate to type of operation.
- use safe lifting procedures.
- wear proper clothing for cold, hot, and adverse weather conditions.
- use techniques to avoid unsafe situations that might result in robberies, highjacking, or pilferage.

Knowledge Objectives

Students must know

- the effects of alcohol, drugs, poor diet, fatigue and poor vision, hearing and general health upon safe operation.
- the function of protective gear (hardhat, respirators, etc.) in prevention of injury.
- Federal and State regulations governing physical requirements.
- the importance of staying with a disabled vehicle when stranded during adverse weather conditions.
- the background and character requirements for being a safe and successful truck driver.
- Procedures for safe lifting.
- Procedures for securing truck in emergency stops.

Skill Objectives

None

Attitude Objectives

Students must believe that

- safe operation of a motor vehicle demands that the operator be physically and mentally fit.
- physical and mental fitness requires proper rest and diet, good health, and avoidance of alcohol and other drugs.
- Seat belts are for their protection and should always be worn.

LESSONS

Lesson 1.	**Personal Health and Driving (Classroom)**	**2 hours**
Lesson 2.	**Safety Equipment and Practices (Classroom)**	**1 hour 45 minutes**
Lesson 3.	**The Truck Driver's Envornment (Classroom)**	**1 hour 15 minutes**

LESSON 1 PERSONAL HEALTH AND DRIVING (CLASSROOM)

Overview

Time Allotted: 2 hours

Prerequisites: None

Purpose:

The purpose of this lesson is to review the basic physical requirements needed for driving a truck and the need to stay in shape through rest, diet and exercise. The critical problems of fatigue, drugs and alcohol are the major points of discussion in the class. The lesson ends with a class discussion about the effect of fatigue, alcohol and drugs on the ability to drive.

Materials

Instructional Aids

Visuals 1 - 18

Student Material

Copy of the Federal Motor Carrier Safety Regulations, Part 390-397
Essentials of a Good Diet, in Unit 5.5 of Student Manual
On-the-Job Exercise Routine, in Unit 5.5 of Student Manual
Dealing with Fatigue, in Unit 5.5 of Student Manual
Drinking/Driving Laws and Penalties, in Unit 5.5 of Student Manual
Common Drugs of Abuse, in Unit 5.5 of Student Manual

Instructor Material

Copy of The Federal Motor Carrier Safety Regulations, Parts 390-397
Copies of your State laws and regulations regarding driving and use of alcohol and legal/illegal drug usage

Content

Activity or Topic	Approximate Time
1. BASIC PHYSICAL REQUIRMENTS	30 minutes
2. FATIGUE AND DRIVING	25 minutes
3. ALCOHOL AND DRIVING	25 minutes
4. DRUGS AND DRIVING	25 minutes
5. CLASS DISCUSSION	15 minutes
	2 hours

1. BASIC PHYSICAL REQUIREMENTS (30 minutes)

Driver must be physically fit and mentally alert.
Physical qualifications outlined in Federal Motor Carrier Safety Regulations (FMCSR) Part 391.

Visual 1 Physical Requirements For Interstate Truckers

Mental and Physical Condition

Vision

- Most important physical requirement in driving task.

- Visual acuity
  - Ability to see things clearly
  - 20/40 vision in each eye is the minimum required by the FMCSR (can be achieved with corrective lenses).

- Periodic eye checks (every 24 months) required
  - Acuity dims with age.

- Peripheral vision (also field of vision).
  - Field of vision normally is about 180 degrees.
  - When less than 140 degrees, cannot drive safely.
  - FMCSR requires field of vision of at least 140 degrees (70 degrees in each eye).

- Color perception
  - Need to see red and green to obey traffic lights.

- Night vision and glare recovery.
  - No Federal requirements but very important.
  - Many older drivers development undetected night vision problems.
  - Should have night vision checked periodically.
  - Protect night vision during sunny days or when snow glare with good quality sunglasses.

Hearing

- Able to hear a forced whisper from a distance of at least five feet away

Physical Stamina

- Truck driving requires stamina
  - Ability to handle large rig on long over the road hauls

- Physical strength
  - Loading/unloading cargo
  - Coupling/uncoupling
  - Getting in and out of cab and/or cargo body

Other Physical Requirements

- Cannot drive if limbs (legs, hands, feet) impaired, e.g., loss of limb, leg arm (special waiver can be be applied for in case of impairment/loss of limb only), rheumatic or arthritic condition which interferes with ability to drive.

- Cannot drive if current diagnosis of serious illnesses which affect ability to drive safetly, e.g., diabetes melitus (which requires insulin), coronary insufficiency, epilepsy, high blood pressure, alcoholism, etc.

Physical Examination and Certification

- Examination
  - Required every two years or after serious illness or accident.
  - Carrier can require more often.
  - Right to drive depends on passing this exam.
- Certification
  - Doctor's certification required indicating exam passed and driver is physically and mentally qualified to operate tractor-trailers in interstate commerce.
  - Certification must be carried at all times, just like drivers license.
    - Safety Inspectors can ask to see it at any time.
      - Failure to have it is a violation.

Importance of Staying in Shape

- Tractor-trailer operator must stay in shape
  - To be able to drive safely
  - To avoid kinds of medical conditions which cause failure of mandatory physical examinations.
- Stay in shape by getting proper rest, plenty of exercise, avoid use of alcohol and drugs.
  - Short term effects of staying in shape--will be alert and drive safely.
  - Long term effects of staying in shape--will avoid those health problems, such as heart trouble, diabetes, which will cause an early end to driving career.
- Remember failure to stay in shape, may lead to medical conditions that will cause you to fail the physical examinations.
- Failure to pass the physical exams means you become disqualified as an interstate driver.

Note: Instructor should refer students to FMCSR 391 subpart E. Time should not be taken to read it in class, but it should be assigned as outside reading since it contains basic physical qualifications of driver, e.g., details of those discussed above.

Visual 2 List of Good and Bad Diet Habits

Maintaining a Good Diet

Poor diet causes health problems and can affect driving ability, i.e., alertness, reaction time, perception

- Commercial drivers frequently have poor dietary habits which are harmful in later years
- Bad habits include:
  - Eating the wrong foods
  - Eating too much without exercise
  - Eating too fast

Poor diet can have serious short and long range consequences

- Short range: Fatigue, headaches, loss of energy, indigestion, constipation
- Long range: Obesity, nervous disorders, high blood pressure, are major contributor to circulatory and heart problems

Good diet has beneficial affects

- Keeps driver alert and clear headed
- Enough energy to complete his tasks

First Essential of a Good Diet: Wide Variety of Foods

- Daily requirements of adults (four basic food groups):
  - Milk group
    - Two or more cups of milk, milk products, cheese, dried or evaporated milk
  - Meat groups
    - Two or more servings of beef, veal, pork, lamb, fish or eggs
    - Dry beans, peas and nuts as alternatives
  - Vegetable-fruit group
    - Four or more servings including dark green or yellow
    - vegetable Important for Vitamin A, at least every other day
    - Citrus fruits or other vegetable/fruits, which include Vitamin C, each day
  - Bread-cereal group
    - Four or more servings of bread or cereals, whole grain, enriched or restored

- Vitamin deficiencies caused by inadequate diet
  - Many adults neglect foods in vegetable/fruit group
  - Result: Diets lack Vitamin A, C, and B2

  - Lack of Vitamin A: Failure to eat enough green, yellow vegetables
    - Consequences
      - Decreased ability to see at night (night blindness)
      - Decreased visual acuity

Lack of Vitamin B2: Failure to eat enough from fruit/vegetable group
- Consequences
  - Short range: Muscle weakness, indigestion, headaches and fatigue
  - Long range: Anemia, depression, difficulty in concentrating

Lack of Vitamin C: Failure to get enough Vitamin C through citrus fruits and vegetables
- Consequences
  - Short range: Loss of energy, prone to infections, painful joints
  - Long range: Very serious side effects, including physical incapacitation

Second Essential of Good Diet: Avoid Too Many Calories

Amount of food as important as variety

Calories
- Calories change to energy in body
- Total number of calories each day should equal amount needed
- Calorie requirements decrease with age and activity
- Individuals should check age, weight, medical sources for amount needed
- Excess calories turn into fat, e.g., too many sweets and pastries
- Too many calories plus too little exercise equals overweight
  - Short range consequences: Lack of energy, strength and maneuverability to do the job, prone to fatigue
  - Long range consequences: Higher incidence of serious illnesses such as diabetes, heart and circulatory illnesses, stroke (all of which cause failure of physcial exam and loss of job)

Third Essential of Good Diet: Avoid Extremes of Hunger and Overeating

Eat at regular times
Many small meals better than several heavy meals
Avoid extremes: not eating enough
EXAMPLE: Skipping breakfast, too long between meals, eating junk foods or going on fad diets that do not supply needed nutrition
Results: Lack of energy to do job, headaches and discomfort
Avoid extremes: Overeating
Results: Feel "stuffed" and lethargic, often sleepy and early onset of fatigue, difficult to stay alert at the wheel

Example of Poor Diet and Good Diet

EXAMPLE #1: Breakfast--Coffee, donuts and cigarettes
Result: Not enough energy or nutrition, negative side effects from coffee and cigarettes

EXAMPLE #2: Breakfast: Stack of pancakes smoothered with butter and syrup, fried eggs and sausages, coffee and cigarettes.
Result: Not enough nutritional variety and will leave with stuffy feeling.

EXAMPLE #3: Balanced breakfast: Fruit juice, multi-vitamin, bowl of grain cereal topped with fruit instead of sugar, whole wheat toast, tea or nonfat milk.
Result: Has all major food groups except vegetable.
Driver will feel good, alert and be able to handle job.

Snacks
- Drivers need snacks in addition to well-balanced meals
- Avoid:
  - Quick calories of sugar snacks, e.g., junk food, candy, give quick energy but quick let down.
  - Eating only fast foods, e.g., mainly fried foods such as french fries, hamburgers.
  - Fried foods not as nutritious as broiled.
  - "Fast food only" diet lacks fruits, vegetables.
- Substitute with healthful, nutritious snacks.
  - Fresh or dried fruits, oatmeal cookies.
  - Carry healthful snacks on the road, e.g., fruits, granola bars, oatmeal cookies, etc.

Recap

Eat a variety of foods from four main groups.
Avoid too many calories.
Avoid extremes:
- Skipping breakfast, junk foods, too long between meals.
- Heavy meals at one sitting.

Use nutritional snacks instead of high energy "sugar" snacks.

Visual 3 Exercising On and Off the Job

Exercise

Regular program of exercise needed for many reasons.
- To keep muscles in tone.
- To keep weight off and keep trim.
- To keep fresh and alert.
- To preserve ability to keep good reflexes and reactions.
- To help relax, very important.
- To help prevent serious heart and circulatory illnesses.

Exercise plays a major role in keeping circulation and heart pumping properly.
Poor diet and lack of exercise major reasons for heart diseases (along with smoking).

Exercising Off Duty

Key: Set Up a Regular Daily Routine

- Does not have to be elaborate or expensive, very simple.
  - A.M.--Start each day with 5 minute calisthenic routine, e.g., pushups, jumping jacks, knee bends, situps.
  - P.M. Major exercise activity each evening, a 30-minute brisk walk all that is needed for good health.

Other Types of Exercises

- Regularly scheduled tennis, squash, jogging, etc., exercises which get heart pumping and blood circulating are good.
- Join a health club (if affordable) and take advantage of regular exercise facilities.
- Swimming is the best exercise, e.g., good for heart, circulation uses all muscles, very few injuries or danger, excellent for relaxing.

Exercising on the Job

- Long haul driving is sedentary and stressful job and easily leads to fatigue
  - Even long periods of physical activity when loading/unloading are not enough.
  - Need to stop and perform short exercise routines periodically.
  - Simple exercises can be done in a short period of time.
    - Stop and jog around vehicle.
    - Do pushups and simple stretching exercises to improve blood circulation.
- Benefits
  - Keeps driver relaxed and alert to be able to handle emergencies
  - Stretches muscles and helps keep in shape and maintain physical condition which aids in combating fatigue.

Getting Adequate Rest

- Basic need for all drivers to get adequate amount and proper rest.
- New drivers have more critical need for rest than other drivers.
  - Less experience--means more driving mistakes.
  - Probably will get oldest vehicles in poorest shape and/or worst loads.
  - Low seniority will mean you will start out on the "extra board," will have no regular working shift. Also subject to dispatcher's call night or day.
  - After gaining enough seniority to get off the "extra board" will get the least desirable work shifts e.g., night shift.
  - Older drivers need plenty of rest too.
    - Physical condition deteriorates beginning at 40-45.
    - Need to keep in shape to pass physical examinations.

Proper Rest

- Avoid overactivity, parties, alcohol, stressful situations in off-duty time just prior to driving.

Adequate Rest

FMCSR requires 8 hours rest.

Some people need more than 8 hours and are not rested unless they get 9-10 hours of actual sleep - which may take 10-11 hours to get.

8 hours off duty doesn't equal 8 hours rest, if it is spent at parties, cutting the lawn, watching television, etc.

2. FATIGUE AND DRIVING (25 minutes)

Visual 4 List of Causes and Effects of Fatigue

Scope of the Problem

Major underlying cause of over the road accidents

Statistics show truck driver fatigue factor in nearly 30% of over the road accidents.

Occupational hazard of over the road drivers especially new drivers who have irregular schedules.

Basic Causes of Fatigue

Sleep deprivation.

Long continuing monotonous tasks, e.g., long over-the-road haul, more likely to occur at night, particularly early dawn hours of 4-6 a.m.

Lack of physical fitness.

Illness--such as colds.

Effects of Fatigue--Interferes with basic skills needed for driving

Judgment

Do not respond to hazards, i.e., fatigued driver doesn't recognize most hazards.

Clearances and gaps judged badly.

Reaction Time Slowed

Does not respond as quickly to situations.

Thinks he is driving okay but is really moving in slow motion.

Perception

Depth perception effected.

Critical distances of oncoming vehicles misjudged.

Speed of other vehicles is misjudged.

EXAMPLE: Extremely fatigued driver traveling at 50 mph or 74 feet per second.

Car pulls out and driver needs to brake immediately.

Normal reaction time is 3/4 of a second or 55 feet traveled.

Because of fatigue

Takes one full second to react.

Extra 19 feet traveled can be difference in hitting car or stopping in time.

Side Effects

Micro Sleeps

Short (a few seconds) unintentional naps.

Obviously dangerous in driving situations.

EXAMPLE: Even if only going 30 mph, 1/2 second micro sleep means driving blind for 22 feet.

Hallucinations

Drivers have "imagined" hazards that weren't there, e.g., swerved into another lane to avoid hitting another vehicle or animal that simply did not exist.

Situations Which Cause Fatigue

Stress increases likelihood of fatigue, i.e., more sleep is needed

Situations causing stress and/or sleep deprivation or contributing to fatigue.

- Job and home tensions.
- Improper diet and lack of exercise.
- Use of alcohol or drugs and cigarettes.
- Loneliness or monotony.
- Worry.
- Varied sleep patterns, e.g., the "extra board" driver who does not have fixed schedule must frequently change sleep patterns.

Visual 5 Dealing with Fatigue

Dealing With Fatigue

Prevent it
Recognize it
Deal with it when it occurs

Prevent Fatigue

Driver is responsible for his condition when reporting to work

Cut down the chances of fatigue

- Get enough rest and eat properly
- Exercise and remain active
  - Over-the-road is not an active job
  - Get active off the job

Show up for the job alert and ready to go--not with a hangover or too tired from off-duty activities

Recognize Fatigue When it Occurs

Signs are obvious: eyes get heavy and dull
Tired eyes mean tired body and fatigue is setting in
Becomes cross and irritable
Feeling lethargic and unable or unwilling to do anything

Deal With it Properly

Many myths about dealing with fatigue:

- Opening the Window--myth
  - Fresh air may actually lull driver to sleep, unless it's cold air.
- Turn the Radio Up Loud--myth
  - Not even the loudest noise can prevent sleep.
  - Sound of radio may actually lull driver to sleep.
- Stop for Something To Eat--myth
  - Fatigue often masked as hunger.
  - Eating a heavy meal actually increases chances of falling asleep.
  - Statistics show many accidents occur roughly 30 minutes after meal stop.
  - Body circulatory system working hard to digest food and leaves brain vulnerable to sleep.
  - If driver really hungry should eat, if just fatigue should rest.
- Talk to Someone--myth
  - Works only temporarily if fatigue is really a problem.
- Take a Pill--myth
  - "Pep pills" only mask fatigue.
  - Make situation more dangerous when effects wear off.
    - Driver can pass out at the wheel.
- Have a Drink--myth
  - Alcohol is a depressant and almost insures fatigued driver will fall asleep.
- Drink Coffee--myth
  - Stimulates for short period.
  - Lets driver down and increases chances of sleep.

Proper Way to Fight Fatigue

Sleep is the best solution--NO SUBSTITUTE

Naps

- Pull off the road and take short 20-to 30-minute nap.
  - Make sure it's safe and legal.
  - Vehicle is properly secured and at a safe distance from edge of roadway.
- Sometimes a second nap is needed.
  - Some drivers revive for short period and then need another short nap.
- Rest comfortably
  - Napping over the wheel is not helpful.
  - Try to lie down and rest underneath a blanket.

Pull into a motel or rest stop.
- If short naps aren't enough, stop driving and get the rest you need.
- Don't do this without calling your supervisor, you may be fired for failure to keep schedule.

Remember though, better to lose job, than to risk loss of life from falling asleep at wheel!

Things that Help Until Proper Rest Can be Obtained

- Air conditioning helps avert fatigue.
  - Cool cab helps prevent or avert fatigue.
  - Warm cab puts driver to sleep.
- On-the-job exercises.
  - Fives minutes of on the job exercises can help combat drowsiness resulting from boredom, midday heat, heavy eating.

Penalties and Risks Posed by Fatigue Greater Than any Loss, e.g., running late

Better to arrive 10 minutes late than to get into an accident.

Illness

Driver should not be on the road if he is ill or injured and it intereferes with his ability to drive.

EXAMPLES: Heavy colds or allergies cause stuffed head, runny eyes, dizziness and interfere with ability to drive safely.
- Severe sprain to right ankle received during touch football off duty make it unsafe to drive.
  - Will not be able to shift right foot from accelerator to brake pedal quick enough if emergency occurs.
- If ill or injured, don't take chances.
  - Discuss condition with supervisor and decide whether or not it is safe to drive.

FMCSR and Fatigue and Illness

FMCSR 392.3
- Not legal to drive when you are impaired.
- Prohibited from driving when fatigue or illness impairs alertness.

NOTE: Ask students to read FMCSR 392.3 at this point. Discuss and answer any questions.

Recap

Fatigue major cause of accidents.

Fatigued driver is danger to other road users and himself.
- Prevent it by getting proper rest.
- Nap or sleep when fatigue occurs.

Professional driver has responsibility not to try to drive when fatigued or ill.

3. ALCOHOL AND DRIVING (25 minutes)

Scope of the Problem

Drinking and driving is a serious problem.
Alcohol involved in half of annual 50,000 traffic fatalities.

Each driver must know:
- How alcohol works in the human body.
- How it affects driving abilities.
- The laws regarding use of alcohol (FMCSR 392.5).
- Legal, financial and safety risks of drinking and driving.

Visual 6 Alcohol Myths and Facts

Alcohol: Myths and Facts

Many dangerous myths surround the use of alcohol.
Driver who believes these myths more likely to abuse alcohol.
(Discuss the myths and facts as presented in the visual).

Visual 7 They Are All the Same

What is a Drink?

Alcohol intake measured by percentage of alcohol in drink.

All of the drinks in visual have same strength:
- 12 ounce glass of 5% beer (12 x 5% = 6 ounces)
- 5 ounce glass of 12% wine (5 x 12% = 6 ounces)
- 1-1/2 ounce shot of 80 proof (1.5 x 40 % = 6 ounces)

Some drinks can be stronger.
- Doubles and triples--two or three times as much alcohol.
- Mixer drinks--some mixers also contains alcohol, i.e., vermouth.

Visual 8 Diagram Showing Alcohol Absorbtion and Elimination from Body

How Alcohol Works

Key processes are absorption and elimination

Absorption and Elimination

- Alcohol absorbed rapidly
- Goes directly into bloodstream
- Does not have to be digested like food
- Drinker can control absorption rate
  - Drink slowly
  - Pace drinks

Drinker cannot control elimination rate
    90 percent of alcohol eliminated through liver
    Rate: approximately one drink per hour
How alcohol builds in bloodstream
    Absorbed faster than drinker can eliminate it
    Builds up in bloodstream
    BAC (Blood Alcohol Content) is percentage of alcohol in bloodstream

Visual 9 Areas of the Brain Affected by Alcohol

Alcohol and the Brain

Alcohol progressively affects functions of brain as the BAC builds up.

Higher learning centers affected first.
    Areas of the brain that control judgement and inhibitions.
    Keeps drinker from recognizing the effects of alcohol.

Muscle control, vision and coordination next affected.

Bodily functions affected last.
    Causes person to pass out.
    Only automatic breathing and heartbeat remain when brain is fully "sedated" by alcohol.

Sobering up process
    Alcohol affects dissipate in reverse process.
    Judgment restored last.

Visual 10 What Determines BAC: Amount and Time

What Determines "BAC" (Blood Alcohol Count)

Amount of alcohol consumed
    More alcohol means higher BAC

Rate of drinking
    Faster drinking means higher BAC

Weight of drinker
    Heavier drinker has slight advantage

Visual 11 List of Effects Related to BAC

Effects of Alcohol as BAC Increases

.01 to .04 BAC--slightly affected behavior.
    Judgment and inhibitions slightly affected.
    Some driving risks.

.05 to .09 BAC
  Behavior changes quite a bit.
  False sense of security.
  Unsafe to drive.

.10 BAC
  Legal level of intoxication in most States.
  Cannot drive safely.

Visual 12 Other Factors Which Affect Behavior: Mood, Experience, Tolerance, Fatigue

Other Factors That Affect Drinker

Mood
  Alcohol hits angry, depressed person harder and faster.

Experience
  New drinkers have high tolerance.

Tolerance
  Some heavy drinkers have high tolerance
  Do not appear to be affected
    But they really are!

Fatigue
  Alcohol hits the tired person very quickly.

Visual 13 How Alcohol Affects Driving - A List

How Alcohol Affects Driving

Alcohol has adverse affect on
  judgment, vision, reaction time all critical to driving.
  "Risk taking" increased.

Results
  Critical errors such as improper speed and lane control.
  Dangerous passing.
  Increased risk of accident or death.

Visual 14 Chart Showing Risks of Drinking/Driving

Risks of Drinking and Driving

Chance of accident
  Two times greater at .06 BAC
  Six times greater at .10 BAC
1/2 of all fatal accidents each year indirectly or directly caused by drinking drivers
  40-50 percent of all traffic fatalities had BAC of .10 or more
  55-65 percent of drivers killed in single vehicle crashes had BAC of 10% or more
Statistics show that accident risk increases for anyone who drinks and drives.

Visual 15 Chart Showing When it is Safe to drive After Eight Drinks

Sobering Up

Body requires about 1 hour to eliminate each drink.
If drinking more than one drink per hour, alcohol will build up in system.
    It is absorbed immediately but eliminated at fixed rate of one drink per hour.
EXAMPLE: Individual cannot safely drive until over 8 hours after last drink because of the buildup of alcohol in his system shown by his BAC.

Visual 16 Drinking/Driving Laws and Penalties

Federal Law and Truck Drivers Drinking

Alcohol Regulations in FMCSR 392.5

Operating while under the influence of alcohol is illegal.
No person shall consume any intoxicating beverage or be under the influence of alcohol within four hours of going on duty.
Cannot drink any alcohol on duty.
Driver can be suspended for 1 year.

EXAMPLES: Having a beer at a truck stop and then climbing back on rig to drive is illegal.

Driver showing up for work after an all night binge should not be allowed to drive.

Risks and Penalties

- Increased accident and injury risk
    - Increased chance of accident
        - Damage to vehicle
        - Injury to self
    - Loss of own life
    - Responsibility for injuring, killing others

- Increased financial risk
    - Fines and other penalties for drinking/driving
    - Higher insurance rates
    - Loss of license
    - Jail sentence
    - All can result in loss of job

NOTE: Ask students to read FMCSR 392.5. Discuss and answer questions.

4. DRUGS AND DRIVING (25 minutes)

Scope of Problem

Both legal and illegal drugs have become large part of our society.
Truckers faced with temptation of taking "pep pills" because of fatigue.
Drivers must know:
  Affects of any drugs taken including affect on ability to drive.
  Regulations related to drugs (FMCSR 392.4).

Visual 17A and 17B Drugs and Their Side Effects

Effects of Major Categories of Drugs

Amphetamines

  Legally used to treat certain illnesses, e.g., obesity, depression.
  Abused by students/drivers to stay awake.
  Nicknames--"bennies" "pep pills" "co-pilots".

  Effects--Temporarily increases alertness

  Harmful Effects--Headaches, dizziness, agitation, irritability

  Most Dangerous Affect on Drivers--masks fatigue
    Interferes with bodies ability to tell person he is tired.
    May think you are alert and driving well but are not.

  Uses Up Body Reserves
    "Coming down" can be traumatic.
    Sudden collapse and overwhelming fatigue.

  May Cause Hallucinations--mirages or visions that cause drivers to swerve into oncoming vehicles.

  Dangerous Myth--"With pep pills you can drive without sleep and never miss it".

  Diet Pills

    Many people who do not stay in shape via diet and exercise, take diet pills as aid to suppress appetite.
    Prescribed diet pills are often amphetamines and can have serious side effects on ability to drive.
    Over-the-counter diet pills may also have side effects, e.g., label may advise "not to drive".
    Stay in shape with diet and exercise and avoid diet pills with potentially dangerous side effects.

    Excessive unsupervised and illegal use interferes with body's normal protective symptoms of drowsiness and fatigue.
    Dangerous and illegal.
    Increased risk of accident and death.

Barbiturates and Other Sedatives

Medicines to calm nervousness and produce sleep, e.g., sleeping pills.
Can be habit-forming.
Must be prescribed.
Dangerous when used illegally or unsupervised.
- Makes person drowsy and less alert.
- Obviously not safe to drive.

Tranquilizers

Group of drugs which relax or relieve tension.
Legal use by prescription only.

EXAMPLES: Librium.
Meprobamate.
Drugs to reduce high blood pressure.

Side Effects

- Most common--dizziness or drowsiness.
- Not safe to drive.

Excessive Use

- Effects similar to alcohol, e.g., judgment, vision, coordination are affected.
  - Driver just as harmful as drinking driver.
  - Can be addictive.

Follow directions and doctor's orders regarding use of prescription medicine
Use only amount and at times prescribed
Know side effects, question the doctor
Don't drive if side effects prevent driving
Report situation to supervisor for advice

Illegal Drugs

Prescription drugs sold illegally, e.g., "pep pills" sold illegally at or near truck stops.
Illegal drugs, e.g., marijuana, cocaine, heroin, LSD.
Effects not as well-known or documented as with alcohol.
Research generally shows effects on driving is at least as detrimental, as is alcohol, frequently they are far worse.

EXAMPLES: Narcotic or Downers--means they put you to sleep.
- Serious narcotic effects are dangerous to driver.

Uppers--act much like amphetamines, e.g., masks fatigue, traumatic "coming down" effects.
Hallucinogens--mind altering drugs: cause hallucinations, distortions, faulty judgments

- Some hallucinogen drugs (e.g., PCP, LSD) have side effects days or weeks after use.
- Violent behavior may occur.

Don't Take Chances With Illegal Drugs

- Evidence is skimpy but generally points to more risks when driving.
- Subject to severe penalties if caught, e.g., criminal record, fines, jail.
- Don't know what you are buying, so can't know side effects.
- Hard to keep or get a job if you have a record as drug user.

Visual 18 Steps to Follow When Using Drugs

Rules for Using Drugs

Prescription and Over-the-Counter Drugs

Prescription Drugs

- Because doctor prescribes it many people think it's safe.
- Know what kind of drug it is and its side effects.
  - Be aware that some people react differently.
  - Doctor may not mention side effects.
- Take only the amount that is prescribed.
- Most important: find out from doctor if it is safe to drive when using any drug that he/she may prescribe for you!

Over-the-Counter Drugs

EXAMPLE: Antihistamines

- Used to relieve colds and allergies.
- Make the user drowsy.

Pay attention to label warnings

- Warning labels tell you side effects.
- Some warning "not to drive".
- Driving when drowsy is dangerous.

Drugs and Alcohol--combining drugs with alcohol is **extremely dangerous!**

EXAMPLE: Tranquilizers and alcohol combined:

- Has multiplication (synergistic) effect.
- One pill plus one drink equals many drinks (not just 2 drinks).
- Combined effects are often rapid and unpredictable.
- Blackouts and rapid intoxication can occur.
- Can cause coma and death.
- Pay attention to labels on all drugs (do not mix with alcohol if so indicated).
- Pay attention to doctors orders (do not mix prescription drugs if so ordered).
- The best rule is not to mix any drug with alcohol.

FMCSR and Drugs

FMCSR 392.4 prohibits driving when under the influence of dangerous drugs.

Includes: Narcotics (or any derivative e.g., morphine, heroin, codeine)
Amphetimines, e.g., pep pills and bennies.
Does not prohibit possession and use of prescription drugs if doctor has advised user that substance will not affect his driving.

NOTE: Ask students to read FMCSR 392.4. Discuss and answer any questions.

Recap

Even though evidence isn't all in, safest rule is do not mix drugs with driving.

Use common sense:
Pay attention to warning labels of legitimate drugs and medicines and doctors orders.
Stay away from illicit drugs.
Don't use any substance that masks fatigue.
Don't mix drinks with drugs.
Be aware of side effects.

Keep in Mind the Responsibilities of a Professional Driver

Professional driver is a safe driver.
Any substance that effects ability to drive safely must be avoided.
A driver on alcohol or drugs stands a chance of being sued if an accident occurs.
Company can be sued.
Driver could lose job, reputation and ability to be employed again.

5. CLASS DISCUSSION (15 minutes)

The purpose of the discussion is to draw from the students their experiences with the things that interfere with driving ability and to reinforce the information presented.

Instructions

Class will discuss effects of fatigue, drinking and drugs on driving ability.
Lead class in discussion based on their experiences as car drivers.
Ask them to volunteer incidents in which driving ability was affected by fatigue, alcohol or drugs.

Questions to Ask to Stimulate Discussion

Can you recall any incident when (fatigue, drinking, drugs) were a contributing factor to any driving errors you made?
Have you ever dozed off while at the wheel?
What did you do? Did you "drive out of it?"
What kind of errors did you make when effected by fatigue, drinking or drugs? Did an accident or near miss occur?

Summary

Summarize the discussion by pointing out once again the need to keep in shape and the added dangers of driving a large tractor-trailer rig as opposed to operating an automobile.

Physical Requirements for Interstate Truckers

- Vision
  - Acuity-20/40 Vision
  - Peripheral Vision-at Least 70 Degrees in Each Eye
  - Color Perception-Distinguish Red and Green
  - Eye Check Every 24 Months
- Hearing
  - Have Ability to Hear Forced Whisper at 5 Feet
- Stamina
  - To Meet Job Requirements, e.g., Loading, Unloading
- Disqualifications
  - Loss of Limb(s) or Disease Which Impairs Limbs
  - Chronic Illness Which Seriously Effect Driving

    Examples:
    - Diabetes Melitus
    - Coronary Insufficiency
    - Alcoholism
- Required Physical Examination
  - Every 2 Years
  - At Carrier's Discretion
  - After Serious Injury or Illness
- Certification by Physician
  - Must Be Carried at All Times
  - As Important as Driver's License

List of Good and Bad Diet Habits

Essentials of a Good Diet

- Wide Variety of Foods
  - Four Basic Food Groups
    - Milk Group
    - Meat Group
    - Vegetable/Fruit Group
    - Bread/Cereal Group
  - Lack of Variety = Lack of Necessary Vitamins
- Avoid Too Many Calories
  - Calories = Energy
  - Take in Only What You Need
  - Too Many Calories = Overweight, Fatique and Lack of Energy
- Avoid Extremes of Hunger and Overeating
  - Hunger = Lack of Energy
  - Overeating = Stuffy, Lethargic Feeling
- Example of Good Diet
  - Breakfast
    - Fruit Juices
    - Multivitamin
    - Bowl of Grain Cereal Topped With Fruit
    - Whole Wheat Toast
    - Nonfat Milk
  - Snacks
    - Avoid Quick Sugar Snacks (Candy Bars) and Junk Food
    - Try Dried Fruit or Oatmeal Cookies

Exercising On and Off the Job

Why Exercise?

- Keeps You in Shape
- Keeps You Alert
- Helps Prevent Fatigue
- Wards Off Serious Illnesses and Loss of Certification
- Helps Relax You

How to Exercise

- Off the Job
  - Set Up a Daily Routine
    - Mornings
      - Regular, Simple Exercise Routine
      - Pushups, Jumping Jacks
    - Evenings
      - End the Day With Exercise
      - Long Brisk Walk or Jogging
    - Join a Health Club
      - Swimming Is the Safest and Best Exercise
- On the Job
  - Exercise to Stay Alert
  - Stop Your Truck on Long Hauls
    - Jog Around the Truck
    - Do Some Pushups

List of Causes and Effects of Fatigue

Fatigue

- A Factor in 30% of Over the Road Accidents for Truck Drivers!
- Occurs at Most Dangerous Time to Drive–at Night!

Causes

- Lack of Sleep, Lack of Exercise, Wrong Food and/or Overeating at Wrong Times
- Long Continuing, Monotonous Stints at the Wheel

Effect on the Driver

- Judgment
  - Doesn't Recognize Hazards in Time
  - Judges Gaps and Clearances Poorly
- Reaction Time
  - Examples: Unable to Get Foot From Accelerator to Brake in Time
    Unable to Time Shifting Properly
- Perception
  - Speed and Distance of Other Drivers Not Perceived Properly
  - Thinks He Is Driving Okay But in Slow Motion
- Concentration
  - Unable to Concentrate

Serious Side Effects

- Micro Sleeps
- Hallucinations

Dealing With Fatigue

Prevent It

- Get Proper Rest
- Avoid or Be Alert to Fatigue Causing Conditions
  - Job and Home Tension
  - Improper Diet
  - Lack of Exercise
  - Use of Drugs and Alcohol
  - Worry
- Recognize It
  - "Tired" Eyes Are Sure Sign

Deal With It Properly

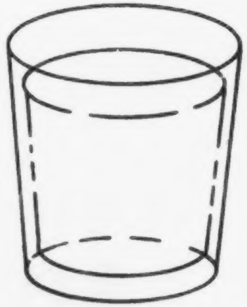
- Makes It Worse
  - Eating
  - Coffee
  - Pills and Alcohol
- Helps a Little
  - Opening the Window
  - Turning the Radio Up
  - Chewing Gum
  - Talking to Partner
- Helps a Lot
  - A Cool, Air-Conditioned Cab
  - Stopping for Exercise
  - Taking a Nap or Long Rest

Visual 6

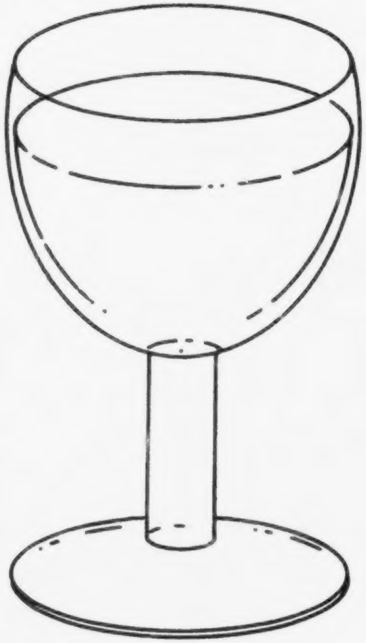
Alcohol: Myths and Facts

Myths	*Facts*
Alcohol Increases Mental and Physical Ability.	Alcohol Decreases Mental and Physical Ability.
Some People Can Drink a Lot and Not Be Affected.	No One Is Immune to the Effects of Alcohol.
If You Eat A Lot First, You Won't Get Drunk.	Food Will Slow Down the Absorption But Will Not Prevent Intoxication.
Coffee and a Little Fresh Air Will Help a Drinker Sober Up.	Only Time Will Help a Drinker Sober Up–Other Methods Just Don't Work.
Stick With Beer–It's Not as Strong as Wine or Whiskey.	A Few Beers Is the Same as a Few Shots of Whiskey–They Affect You Equally.

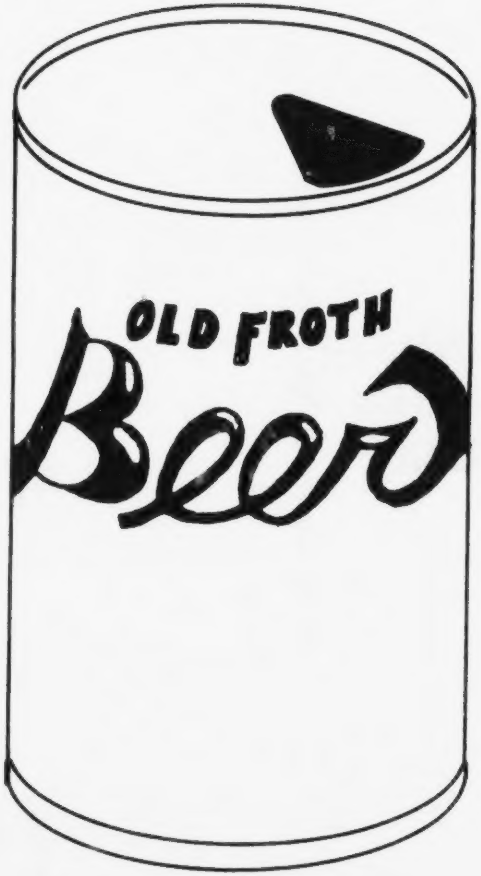
They're All the Same



1 1/2 oz. Liquor

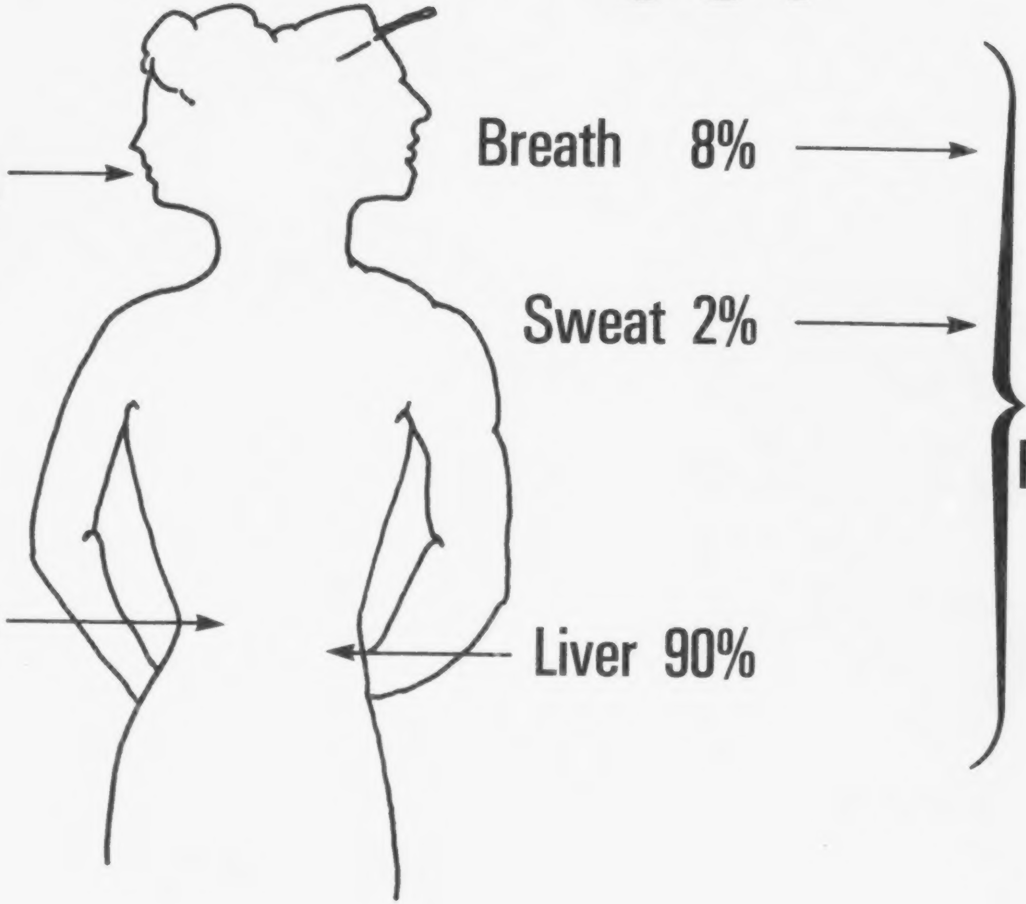


5 1/2 oz. Glass of Wine


OLD FROTH
Beer

12 oz. Can of Beer

Alcohol In/Out



IN

Drinking

Absorption

OUT

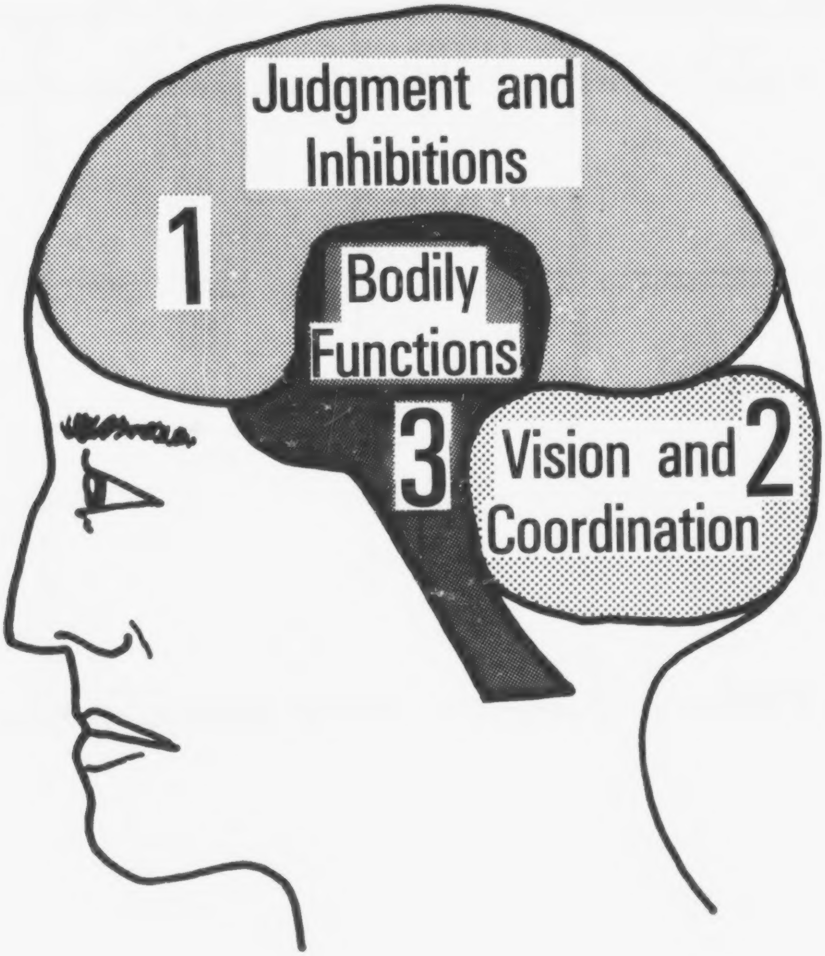
Breath 8%

Sweat 2%

Liver 90%

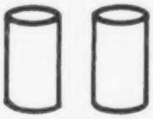
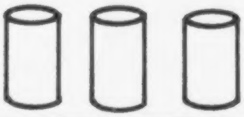
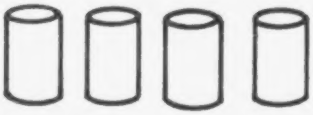
About 1 Drink Per Hour

Alcohol and the Brain


1
Judgment and Inhibitions
2
Vision and Coordination
3
Bodily Functions

Visual 10

What Determines BAC: Amount and Time

Amount	Time	Weight	BAC
	One Hour	160	.03
		180	.03
		200	.02
	One Hour	160	.05
		180	.04
		200	.04
	One Hour	160	.08
		180	.07
		200	.06

Effects of Alcohol as BAC Increases

BAC	*Effects*
.01–.04	Judgment and Inhibitions Are Slightly Affected. Drinker Is More Relaxed, Sociable, Talkative. Some Risk if Drinker Drives.
.05–.09	Judgment, Vision, and Coordination Are Affected. Behavior Changes. Drinker Has False Sense of Security. Serious Risk if Drinker Drives.
.10 and Over	Judgment, Vision, and Coordination Are Seriously Affected. Legal Level of Intoxication in Most States. Drinker Is Not Able to Drive Safely Because of Dangerously Diminished Abilities.

Visual 12

Other Factors Affecting Behavior

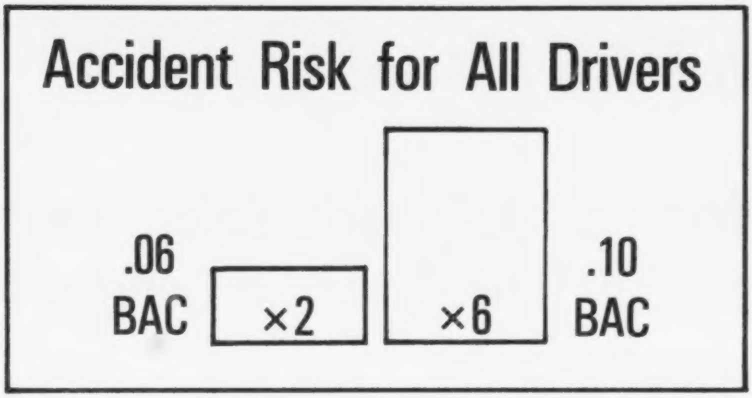
Mood	Anger, Depression, Etc., Can Heighten the Effects of Alcohol.
Experience	Inexperienced Drinkers May Feel and Appear Drunk on One Drink.
Tolerance	A "High Tolerance" Just Means That the Effects Aren't Always Obvious.
Fatigue	If a Drinker Is Tired, Alcohol Can Hit Fast and Hard.

How Alcohol Affects Driving

- All Drivers Are Affected by Alcohol
- The Effects on Judgment, Vision, Coordination, and Reaction Time Result in Serious Driving Errors, Such as:
  - Driving Too Fast or Too Slowly
  - Driving in the Wrong Lane
  - Running Over the Curb
  - Weaving
  - Straddling Lanes
  - Quick, Jerky Starts
  - Not Signaling, Failure to Use Lights
  - Running Stop Signs and Red Lights
  - Improper Passing
- These Effects Mean Increased Chances of an Accident and/or Loss of Driver's License!

Visual 14

What Are the Risks?

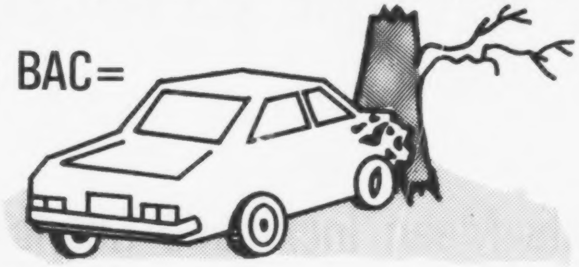

Accident Risk for All Drivers

- 1/2 of All Traffic Deaths
  (2,500 Lives Each Year)

.10 BAC=

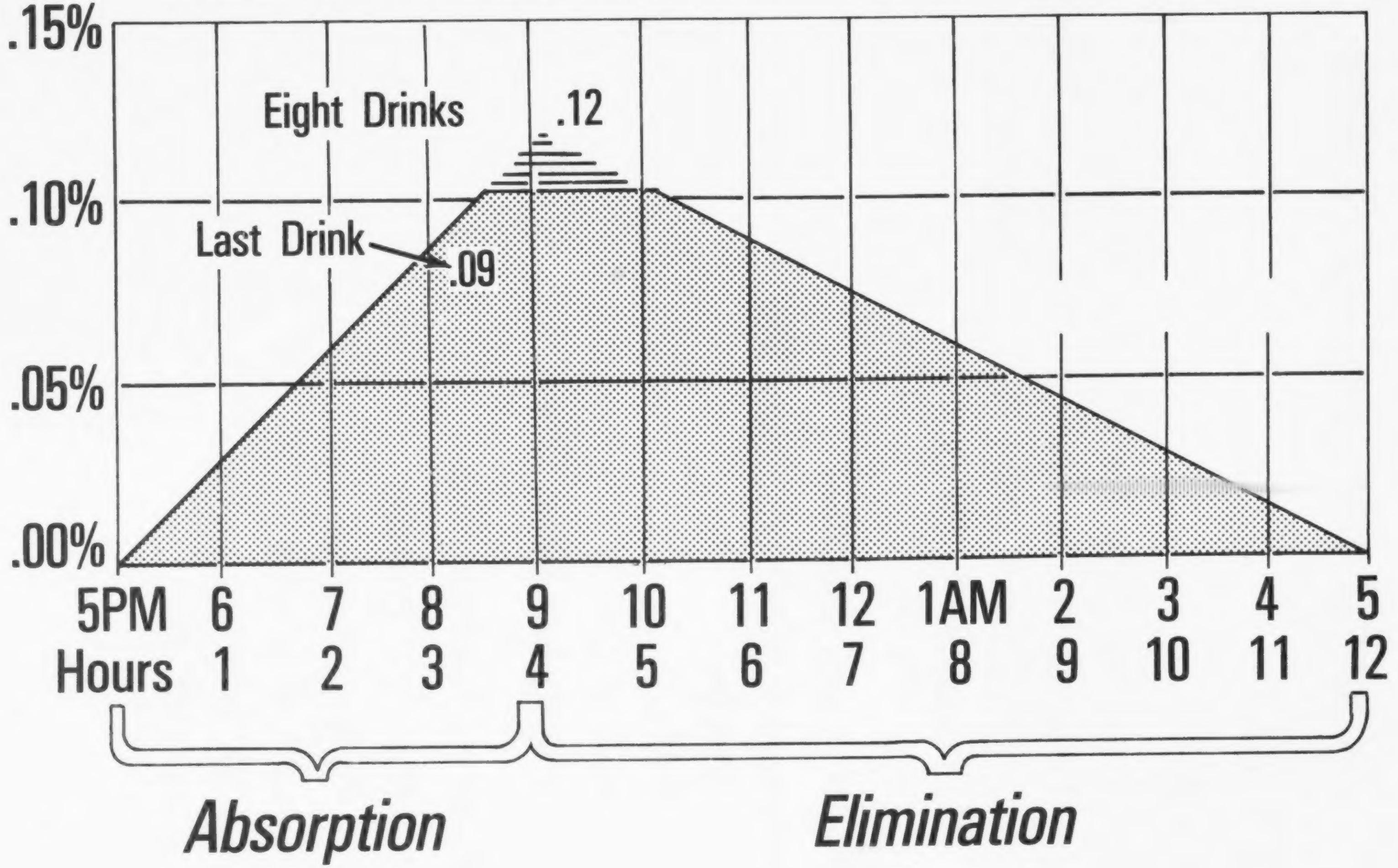
40-50% of All Driver Fatalities

.10 BAC=



55-65% of Driver Deaths
in Single Vehicle Crashes

When Is It Safe to Drive? (After 8 Drinks)



(150-Pound Person Drinking on an Empty Stomach)

Visual 16

Drinking/Driving Laws and Penalties

FMSCR 392.5

- Prohibits!
  - Operating Under the Influence of Alcohol
  - Being Under the Influence of Alcohol or Taking a Drink Within 4 Hours Prior to Going On Duty
  - Drinking While On Duty

Other Risks and Penalties

- Increased Accident and Injury Risk
  - Damage
  - Injury
  - Loss of Life
  - Injuring and Killing Others
- Increased Financial Risks
  - Fines and Penalties
  - Higher Insurance
  - Loss of License
  - Jail Sentence
  - Loss of Job

Common Drugs of Abuse

CATEGORY	Drugs	Sample trade or other names	Medical uses	Dependence		Effects in hours	Possible effects	Effects of overdose	Withdrawal symptoms
				Physical	Psychological				
CANNABIS	Marijuana	Pot, grass, reefer, sinsemile	Under investigation	Unknown	Moderate	2–4	Euphoria, relaxed inhibitions, increase in heart and pulse rate, reddening of the eyes, increased appetite, disoriented behavior.	Anxiety, paranoia, loss of concentration, slower movements, time distortion.	Insomnia, hyperactivity, and decreased appetite occasionally reported.
	Tetrahydrocannabinol	THC							
	Hashish	Hash	None						
	Hash oil	Hash oil							
DEPRESSANTS	Alcohol	Liquor, beer, wine	None	High	High	1–12	Slurred speech, disorientation, drunken behavior.	Shallow respiration, cold and clammy skin, dilated pupils, weak and rapid pulse, coma, possible death.	Anxiety, insomnia, tremors, delirium, convulsions, possible death.
	Barbiturates	Secobarbital, Amobarbital, Butisol, Tuinal	Anesthetic, anticonvulsant, sedative, hypnotic	High-moderate	High-moderate	1–16			
	Methaquaione	Quaalude, Sopor, Parest	Sedative, hypnotic	High	High	4–8			
	Tranquilizers	Valium, Librium, Equanil, Miltown	Anti-anxiety, anticonvulsant, sedative	Moderate to low	Moderate				
STIMULANTS	Cocaine	Coke, flake, snow	Local anesthetic	Possible	High	½–2	Increased alertness, excitation, euphoria, increase in pulse rate and blood pressure, insomina, loss of appetite.	Agitation, increase in body temperature, hallucinations, convulsions, possible death, tremors.	Apathy, long periods of sleep, irritability depression.
	Amphetamines	Biphetamine, Dexedrine	Hyperactivity, nercolepsy			2–4			
	Nicotine	Tobacco, cigars, cigarettes	None	High	High			Agitation, increase in pulse rate and blood pressure, loss of appetite, insomnia.	
	Caffeine	Coffee, tea, cola drinks, No-Doz	None	Low	Low				

Source: National Institute on Drug Abuse

Common Drugs of Abuse—*Continued*

CATEGORY	Drugs	Sample trade or other names	Medical uses	Dependence		Effects in hours	Possible effects	Effects of overdose	Withdrawal symptoms
				Physical	Psychological				
HALLUCINOGENS	LSD	Acid	None	None	Degree unknown	8–12	Illusions and hallucinations, poor perception of time and distance.	Drug effects becoming longer and more intense, psychosis.	Withdrawal symptoms not reported.
	Mescaline and peyote	Button, Cactus							
	Phencyclidine	PCP, angel dust	Veterinary anesthetic	Unknown	High	Variable			
	Psilocybin-psilocin	Mushrooms	None	None	Degree unknown	6			
INHALANTS	Nitrous oxide	Whippets, laughing gas	Anesthetic	Possible	Moderate	Up to ½ hr.	Excitement, euphoria, giddiness, loss of inhibitions, agressiveness delusions, depression, drowsiness, headache, nausea.	Loss of memory, confusion, unsteady gait, erratic heart beat and pulse, possible death.	Insomnia, decreased appetite, depression, irritability, headache.
	Butyl nitrite	Locker room, rush	None						
	Amyl nitrite	Poppers, snappers	Heart stimulant						
	Chlorohydrocarbons	Aerosol paint, cleaning fluid	None						
	Hydrocarbons	Aerosol propellants gasoline, glue, paint thinner	None						
NARCOTICS	Opium	Paregoric	Antidiarrheal, pain relief	High	High	3–6	Euphoria, drowsiness, respiratory depression, constricted pupils, nausea.	Slow and shallow breathing, clammy skin, convulsions, coma, possible death.	Watery eyes, runny nose, yawning, loss of appetite, irritability, tremors, panic, chills and sweating, cramps, nausea.
	Morphine	Morphine, Pectoral Syrup	Pain relief, cough medicine						
	Codeine	Codeine, Empirin Compound with Codeine, Robitussin A-C		Moderate	Moderate				
	Heroin	Horse, smack	Under investigation	High	High				
	Methadone	Dolophine, Methadose	Heroin substitute, pain relief			12–24			

Source: National Institute on Drug Abuse

Steps to Follow in Using Drugs

Prescription Drugs

- Know the Drug and Its Side Effects
- Take Only the Amount Prescribed
- Ask Doctor About Effect Upon Driving

Over-the-Counter Drugs

- Read Warning Labels
- Don't Drive if They Cause Drowsiness

Never *Mix Drugs With Alcohol!*

LESSON 2 SAFETY EQUIPMENT AND PRACTICES (CLASSROOM)

Overview

Time Allotted: 1 hour 45 minuts

Prerequisites: Unit 5.5, Lesson 1

Purpose

The purpose of this lesson is to review common safety hazards found in the trucker's environment and the need and proper use of safety equipment and basic safety practices while performing non-driving aspects of the job. Some nondriving safety practices have been discussed in other units, particularly Unit 5.1, cargo handling. However, this lesson focuses on the entire aspect of the driver's job environment.

Materials

Visuals 1 - 6

Student Material

Special Protective Equipment for Drivers, in Unit 5.5 of Student Manual

Six Steps to Safe Lifting Checklist, in Unit 5.5 of Student Manual

Instructor Material

No additional material required

Equipment

Safety equipment samples for display, steel tip safety shoes, hardhat, respirator, face shield, goggles, splash apron, rubber gloves, leather gloves, shinguard protectors, dust mask, and gas mask, for demonstration and for students to examine

Content

Activity or Topic	Approximate Time
1. DRESSING SAFELY FOR THE JOB AND USING PROPER EQUIPMENT	30 minutes
2. VEHICLE AND CARGO DANGER ZONES: FALLING AND OTHER HAZARDS	25 minutes
3. AVOIDING INJURIES WHEN LIFTING	23 minutes
4. ROADSIDE EMERGENCIES	17 minutes
5. AVOIDING CRIME	10 minutes
	1 hour 45 minutes

1. DRESSING SAFELY FOR THE JOB AND USING PROPER EQUIPMENT (30 minutes)

Introduction to Nondriving Hazards

Driving Hazards are Not the Only Dangers to Trucker's Safety

Many accidents and injuries occur when working around the vehicle or with cargo.

Key Rules to Avoid Nondriving Accidents

Dress safely for the job and use the proper equipment.
Be alert to safety hazards around vehicle and cargo and act accordingly.
Use proper lifting techniques to avoid injury when lifting.
Be alert to hazards when vehicle is stopped for roadside emergencies.
Know how to avoid hijacking and other crimes which can result in harm to the driver.

Visual 1 Tips in Dressing Safely for the Job

Dress Properly for the Job

- Keep body adequately covered.
  - No shorts or T-shirts.
  - Heavy denim offers best protection.
- Dress warmly in cold weather.

Protect Hands

- Millions of hand injuries each year in trucking industry.
- Many hazards to hands.
  - Razor-sharp steel bands used to tie boxes and crates.
  - Protruding nails, broken glass, pointed wire.
  - Irritating or corrosive chemicals.
- Select the right gloves.
  - Always wear gloves when handling ordinary cargo.
  - Gloves should have good gripping and protective quality.
  - Select proper gloves when dealing with hazardous materials or waste.
  - Many types of hazardous materials or waste have special requirements for gloves and ordinary gloves are not sufficient.
  - Know and use the glove required, e.g., rubber, latex gloves, rather than ordinary gloves which can trap corrosives and actually be more harmful.
- Avoid wearing jewelry or rings.
  - Can get snagged on cargo and cause loss of fingers or other serious injuries.

Protect Eyes

- If you wear glasses, make sure they are the shatterproof kind.
- Wear sunglasses to protect eyes from glare of sun, snow, water.
  - Make sure good quality and will filter out infra-red rays.
- Wear protective goggles or face shield when required by cargo.

EXAMPLE: Goggles required to protect eyes when dealing with certain commodities e g dust, flour, cinders.

Always protect your eyes - a professional driver always remembers that damaged eyes may mean loss of vision, then the loss of job due to inability to pass physical examination.

Protect Head from Serious Injury

Get your own hardhat and use it.

Use hardhat when loading, unloading and conducting pre-trip inspection.

Protect Feet

Safety shoes are a must to protect from falling objects.

Steel-tipped shoes or work boots are recommended and required by some trucking companies.

Don't wear sandals or tennis shoes.

Visual 2 Special Equipment and Its Uses

Wear Special Equipment for Special Situations

Many special kinds of cargo and especially hazardous materials and hazardous waste cargo require special equipment for protection.

Find out what that equipment is, learn how to use it correctly and then always use it properly.

Ignorance is no excuse for serious injury and don't try to be "macho" by not using it when required.

NOTE: Instructor should have available samples of special equipment listed below to use when discussing and to allow students to examine and ask questions.

Hardhats

Needed for head protection, can't gain access to construction delivery sites without one.

Hazards: Driver can be struck on head by chains, falling cargo.

Respirators

Needed for handling chemical loads, liquified chemicals.

Hazards: Driver can be overcome by fumes, pass out, possible serious respiratory damage.

Splash Aprons

Needed when offloading liquified chemicals or fuel into small containers.

Hazards: Liquids will splash on driver causing severe burns.

Goggles/Face Shield

Needed for loads in which small pieces can fly into your eyes, e.g., cinders.

Hazards: Serious eye injuries, could mean loss of livelihood.

Dust Masks

Needed for handling dry chemicals and similar loads.

Hazards: Respiratory problems.

Shinguards
Heavy metal plates to protect front of legs and tips of shoes from rolling steel bars.

Special coveralls
To protect from corrosives and other hazardous materials.

Rubber gloves up to the elbows
For certain hazardous materials.

Gas masks
When handling poisonous gases and other hazardous materials.

Dress Properly and Be Prepared for Weather Conditions

Part of dressing for the job is also being prepared for anticipated weather conditions.

Winter
- Dress warmly and have extra clothing available.
- Be prepared for emergencies--drivers have frozen to death when marooned in snowstorms because they weren't prepared.
- Make sure you have foul-weather gear, supply of healthy snacks, thermos of coffee, and sleeping bag, in case of emergency.

Summer
- Wear loose, comfortable clothing.
- Be prepared for emergencies, e.g., have supply of water on hand expecially in the desert.

Recap

To be safe on the job means to dress for the job.
Most of dressing for the job is common sense.
- Avoid shorts and sandals and wear heavy-duty dungarees.
- Protect yourself with hardhat, gloves, and safety shoes.
- Find out about and use special equipment for special cargo, especially hazardous material cargo.
- Dress for the weather.

Don't make excuses, e.g., clothing uncomfortable, doesn't fit "macho" image, didn't know about required equipment.
Consequences could be injury, death or disability that prevents driver from passing physical examination and loss of livelihood.

2. VEHICLE AND CARGO DANGER ZONES: FALLING AND OTHER HAZARDS (25 minutes)

Vehicles and Cargo Danger Zones

There are many hazards when working around vehicle or with cargo.
Driver can be seriously injured by falling, tripping, bumping himself, especially by jumping down from cab or from trailer.
Most accidents can be avoided if driver is aware of hazard and is not careless.
It is a matter of common sense and knowing what the dangers are.

Danger Zone 1--The Cab

Dangers

- Tractor cab high off surface and frequently lack handholds or steps.
- When there are handholds or steps, they are frequently slippery surfaces and/or covered with fuel oil, ice or snow.

What to Do

- Pay attention to surfaces before climbing in or out.
- Smooth surfaces more dangerous than ribbed surfaces.
- Watch for ice, grease and oil on foot stirrups.
- Watch for grease and oil on shoes.

Get a Good Grip

- Watch for grease and oil on gloves.
- Always maintain a 3-point contact with vehicle when climbing
- Never jump down from cab, especially in the dark, e.g., could land or debris or pothole.
- Watch for stones or potholes when disembarking.
  - Could result in sprained ankle.

Visual 3 Steps in Safe Entry/Exit From Cab

Safe Entry/Exit

Employee accidents experienced while getting on or off vehicles result in serious or disabling injuries

To control or reduce this problem, with Cab-Over-Engine vehicles, some companies have set up a special Step and Grab Rail System for COE tractors

Safe Entry

- Many cabs do not have safe entry/exit system described above
- On conventional tractor, entry/exit steps located as follows:
  - First step, fuel tank indentation, half way up
  - Second step, top of tank
- Look for slippery places before making entry, fuel tank is especially slippery because of spilled diesel fuel
- Maintain 3-point contact when making entry, no matter what type of system cab has.

Safe Exit

- When exiting, same basic rules as entering apply:
  - Maintain 3-point contact
  - Watch out for slippery surfaces
- Don't jump out of the cab
  - Can land in pothole or on other obstacle, fall, and become seriously injured
  - Especially dangerous at night when you can't see where you will be jumping.

Other Dangers In and Around Cab

- Working under the hood.
  - Many drivers injured when hood falls on them.
  - Be cautious and make sure it is properly secured, e.g., during pretrip inspection.
  - Same caution to be used when working under a COE tractor's raised cab - make sure that safety locks or pins are in place prior to going under a raised cab.
- Thumbs injured in steering wheel.
  - If steering wheel not gripped properly with hands on outer edge, driver can be seriously injured.
  - When vehicle hits pothole or other obstacle, wheel can spin rapidly of control (even at low speeds).
  - If thumbs between spokes, they will be broken, pain will cause driver to close eyes and rig will be out of control.

Danger Zone 2--Coupling/Uncoupling

- Coupling/uncoupling area usually dangerous because of grease and oil on surface
  - Some trucks equipped with air lines and electrical connections at lower left of vehicle so that connections can be made while standing on the ground.
- If you have to stand on vehicle to connect air lines or electrical cable
  - Be careful of slippery surfaces such as fuel tank, battery box, which are especially dangerous when wet and slippery with water, ice, oil and grease.
  - If possible, use surfaces that have been treated with abrasive surface cloth or paint or have serrated metal plates to stand on.
- Pulling release hatch handle during coupling/uncoupling dangerous
  - Driver is off balance and can easily hurt back.
  - Very important to keep feet clear of tractor drive wheels, as tractor may suddenly roll forward and crush feet.

Danger Zone 3--Cleaning Windshields

Be especially careful when climbing up to clean windshields, whether on fender of conventional cab or climbing up front of COE.
Watch for slippery steps before you step up.
If possible, use a step ladder to avoid climbing on vehicle.
If no step ladder, use an extension handle on squeegie to do the job while standing on ground.

Danger Zone 4--Rear End of Van Trailer

- Swinging cargo door
  - Open with extreme care
  - Freight may have tumbled forward and rest against door
  - Doors will pop open from force of cargo as soon as latch released
  - Result: Will knock driver down and cargo will topple on him

- Overhead cargo door, e.g., slides up and down.
  - Many injuries occur because driver grabs pulldown strap and leaps out of trailer.
    - Strap can break, sending driver into spill and resulting in broken bones.
    - Driver can lose grip on slippery strap with same results.
  - Solution: Add additional length of strap and pull down cargo door from the ground, after carefully climbing out of back.
- Power lift or elevating tail gate for heavy cargo.
  - Use care when working with lift gates.
  - Keep hands, feet and cargo clear from shearing (or pinching) areas.
  - When loading with lift gate, make sure cargo is secure so it doesn't fall off.
- Other dangers.
  - Slippery shoes and surface, lack of handhold, nails or splinter in trailer floor can injure driver when dismounting.
  - Safe procedure: Use proper handholds or mobile steps if available.
    Wear gloves when dismounting to avoid hand injuries.

Danger Zone 5--Cargo Area

- Various types of trailers and cargos present different kinds of hazards:
  - Tankers--requires climbing up top to hook and unhook dome coversl
  - Flatbeds--no sides to keep from falling off when tying down cargo Open top vans--requires climbing up sides to secure tarp cover edges.
- Within van trailers
  - Dangers involved in climbing in, over and around cargo to find piece which has to be unloaded.
  - Can easily be bruised or cut from nails, broken glass or bumps or from sharp edges of cargo.
  - Chance of cargo falling over on top of you when climbing around.
  - Dark interior of the trailer makes dangers worse, e.g., bending down to pick up iece of cargo may not even see other cargo which is about to topple on you.
- When picking up or delivering cargo.
  - Always break down last tier of cargo (arrange in steps) to keep it from falling on you next time.
- When working with hazardous materials.
  - Avoid inhaling noxious or poisonous fumes (wear proper protection).
  - Not only the danger of inhalation but chance of becoming lightheaded, losing balance and falling or tripping.
- When acting as guide for others.
  - Falls and serious injury frequently occur when acting as guide for others.
  - Driver walking backward to give directions falls and is seriously hurt.
  - Many drivers also injured or killed when pinned between rear of trailer and dock when guiding others.
  - Be alert, especially alert, in these situations to avoid serious injuries.

Danger Zone 6--Working in, on, around or under Vehicle

- Vehicles with physical damage.
  - Can be injured when working around vehicles with physical damage.
  - Tears in trailer skin, previously unrepaired accident damage to fenders, etc., can cause lacerations if rubbed against or bumped by careless worker.
- Working at night
  - Many drivers fall, slip or bump into things at night simply because they do not use a flashlight.
  - Use a flashlight when working at night, can't possibly couple, do a pretrip, etc., safely without one.
- Working under the vehicle.
  - Must be extra cautious when working under vehicle.
  - Make sure vehicle is secured so it won't roll.
  - Make sure you have the keys in your pocket.
    - Drivers can be injured or killed when other driver jumps in vehicle and takes off, not realizing someone is under vehicle working, e.g., draining air tanks.
    - Best protection: Keep keys in pocket so no one else can drive.

3. AVOIDING INJURIES WHEN LIFTING (23 minutes)

Injuries As a Result of Lifting

- Many injuries occur from improper or unsafe lifting techniques
- All cargo handlers need to know how to lift properly and safely to avoid--
  - Serious back injury.
  - Hernia.
  - Hand or foot injuries.

Proper Technique of Lifting

Keep back and spine straight and let leg muscles do the work

First Rule of Lifting

If material too heavy or not in position to be lifted with proper techniques - get help.

EXAMPLE: Piece of cargo flush against interior wall of trailer and not in position to be lifted with proper technique Use prybar, Johnson Bar or mechanical lift truck to get it in position to be lifted or to do actual lifting

If too heavy, get help from others or mechanical help

Protect Hands When Lifting

- Good grip essential to safe lifting
- Protection of hands also important
- Use gloves which protect hands but also allow for good gripping
- Be alert to and protect hands from "pinching" areas of cargo when lifting

Protect Feet When Lifting

- Injuries occur when cargo is dropped on feet
- Proper lifting technique and good grip helps avoid this
- Also protect feet with safety shoes
- Keep feet clear of object being lifted in case it drops

Visual 4 Six Steps to Safe Lifting

Six-Step Technique for Lifting

Use basic six-step procedure to avoid back injury when lifting

Keep Feet Parted

- One alongside, one behind object
- Comfortable spread gives greater stability
- Rear foot in position for upward thrust of lift

Keep Back Straight, Near Vertical

- Use sitdown position
- Straight, not exactly vertical
- However, spine, back muscles and organs aligned
- Minimizes compression of stomach area that can cause hernia

Tuck in Chin

- Helps keep spine straight and firm

Grip Object with Whole Hand

- Use full palm
- Fingers alone have little strength

Keep Arms, Elbows Tucked in

- Draw load close to body
- Helps keep body weight centered
- Most effective use of strength, power (i.e., lose power when arms held away from body)

Keep Body Weight Directly Over Feet

- Provides most powerful line of thrust
- Start lift with thrust of rear foot

Don't Twist During Lift--Most Common Cause of Back Injury

- Back can be seriously injured or strained if you twist with cargo
- Proper procedure: Do not turn with material until it is grasped to body. Then, and only then, turn in direction desired, safely and avoid back injury or back strain

Lifting with Others

- When 2- or 4-man crew lifting heavy material, coordination required
- Use basic safe lifting techniques and safety precautions
- Make sure each person has good grip and has share of load that he can handle

Unbalanced Load is More Likely to Be Dropped

When one person cannot hold up his end, stop the lifting effort before grip is lost and ease the article down--start again.

Don't wait until cargo dropped, which results in damage and injury to those lifting.

1. Be alert, watch the other fellow.

2. Get a comfortable hold on the subject; do not try to carry it too high.

3. Carry freight only the shortest distance possible.

4. Talk to your partner, let him know when you have to put your end down. **NEVER DROP YOUR END WITHOUT WARNING.**

5. Choose your route before you start. Don't climb over freight, carts, etc. to get where you are going.

6. Usually when the two men are carrying an object, it is necessary that one back up. **DON'T FORCE THIS MAN TO MOVE TOO FAST**. Let him set the pace.

7. While the other man is backing he cannot see his footing. It is necessary therefore that you look ahead and follow the lead man, guiding him at the same time.

8. There can be absolutely **NO HORSEPLAY.** When two men are working together like this and there is horseplay, one or both can get hurt.

9. As in solo lifting, each must keep his back as nearly straight as possible and carry the load with his legs.

NOTE: Have a large, bulky, lightweight (20 pounds) carton available to demonstrate the 6-points of lifting - then have students practice.

Recap

Size up the situation
Don't lift it if it is too heavy or can't be lifted using proper techniques
Keep back and spine straight and let leg muscles do the work
Protect hands and feet when lifting
Most of all, use common sense and avoid a careless accident which could result in serious injury and temporary or permanent loss of livelihood

4. ROADSIDE EMERGENCIES (17 minutes)

Visual 5 Safety Precautions During Roadside Emergencies

Safety Precaution

When stopping or pulling over to check for vehicle damage or for accident, breakdown or other emergency
When actually making emergency repairs or maintenance, e.g., changing tires, putting on chains
In special situations such as live wires across tractor cab

Stopping or Pulling Over for Emergencies

Pull Off the Road as Far as Possible
- Be especially alert when there is no breakdown lane
- Rural roads--and city streets do not have breakdown lanes
- Real danger of being rear-ended when stopping

Make Sure Surface Can Support Vehicle
- After heavy rain or thaw
  - Road shoulder may be too soft to support vehicle
  - Check before stopping
  - Be especially alert in dark and at night when you can't see the surface
  - Result: Vehicle pulled onto soft shoulder could end up mired or could even tip over

Stopping on Slippery Hills
- Many drivers injured when stopping to check on vehicle which is spinning wheels or stuck on icy or slippery hill
- Even after properly securing vehicle (putting transmission in gear, setting emergency brake, chocking wheels) there is danger
- Vehicle can slide down hill and roll over driver, e.g., both wheels and chocks will slide on a slippery surface

Get Out of Cab Safely
- Many drivers injured when getting out of cab for emergency after stopping
- Don't jump out of cab, especially dangerous in the dark
- Don't get out on driver's side and into the path of oncoming traffic
  - Very dangerous if not stopped in breakdown lane
  - Danger is compounded by jumping out, e.g., could fall and land in path of oncoming traffic

Setting Up Emergency Flares (See also Unit 5.4 for placement of emergency warning devices and dangers in handling flares)
- Many drivers hit by oncoming traffic when setting up emergency warning devices for accident or breakdown
- Especially dangerous at night and if not pulled over into emergency breakdown lane
- Get out on passenger's side
- Put flares or triangles in front of you facing oncoming traffic to warm them of your presence

Be Careful When Aiding Other Accident Victims

- Many drivers injured or killed when stopping to help others
- Exercise caution before crossing heavy traffic to aid victim
- Be careful--don't become an accident victim while trying to help others

Making Emergency Repairs and Maintenance

Drivers can be injured or killed when making emergency roadside repairs or installing/removing snow chains

- They are careless about oncoming traffic
- Do not know how to make repairs safely

Pull Off the Road Completely When Making Repairs

- When changing tires or making other repairs, vehicle must be pulled well off the road
- Driver should face oncoming traffic when handling tools or making repairs
- Must be especially alert in wet or icy conditions for dangers from
  - Vehicle being repaired
  - Overtaking vehicles

Be Cautious When Checking Cold Metal or Hot Tires

Cold Metal

- When stopping to check vehicle in freezing weather
- Hands can freeze immediately to cold metal of vehicle in freezing weather
  - Flesh can be ripped off when trying to pull stuck hand away
  - Can only be drawn free safely by pouring warm water over the metal
- Avoid the whole problem--wear gloves

Hot Tires

- When checking hot tires, must be done correctly or will be severely burned
- Do not touch with palm of hand, can be severely burned before hand can be pulled away
- Check with back of hand, as reflexes will pull hand away safely before being burned

Know How to Make Repairs Safely

Drivers can be seriously injured if they do not use the proper tools or techniques when making emergency repairs

Changing Tires (Discussed in detail in Unit 4.3)

- Use the proper tools and techniques
- Can suffer minor injuries (skinned knuckles) or more serious injuries (hernia) if you do not know what you are doing
- Be especially alert to proper jack usage, vehicle can slip off and injure or kill the driver

Jump Starting Vehicles (Taught in Unit 4.2)

- Can be severely burned or injured unless proper procedures followed

Putting on Snow Chains (Taught in Unit 2.6)
  Not a difficult procedure if driver is trained and knows how
  Procedure can be dangerous because of snow and ice
  Driver can easily fall and be injured
  Vehicle can slip and crush driver even if secured with chocks (due to hot tires melting ice/snow beneath)

Thawing Out Frozen Brakes
  Be alert to vehicle rolling and crushing driver, as brakes release
  Even if chocked, both wheels and chocks can slide

Towing Disabled Vehicle (Taught in Unit 2.6)
  Do not attempt unless you know equipment and technique
  Towing cable can snap and cut driver in half

Special Situation: Live Wires

Severe storms which knock over live electrical wires extremely dangerous to tractor-trailer operators
Live wires can land on the vehicle because of storm or when vehicle hits low-hanging wires
Do not ever attempt to get out of vehicle, and do not move around and/or touch anything you are not already in contact with
This action could complete the "ground" and you could be killed instantly
Sit and wait for someone else to help

Recap

Drivers must be especially alert for dangers when stopping for roadside emergencies
Pull safely off the road and get out on passenger side
Never take chances with oncoming traffic, e.g., running across the road to help accident vehicles
Be especially alert to dangers of sliding vehicle, even if secured, during ice and snow conditions
Know how to make repairs safely, using proper tools and techniques and do not attempt to make repairs if unqualified

5. AVOIDING CRIME (10 minutes)

Visual 6 Tips for Avoiding and Dealing with Crime

Crime Against Truckers

Hijacking
Larceny
Theft at truck stops
Job hazard for truckers carrying valuable cargo

Steps in Protection

Follow Company Policies
  Be aware of areas of crime
  Know types of valuable cargo that are target of crime

Protect Vehicle

- Secure and park it safely
  - Don't park in dimly lighted areas in high crime areas
  - Don't leave it overnight in dimly lighted area outside motel
  - Don't pull off in grove of trees in rural area--become a prime target for crime
  - Do park in well lighted service and rest stops
  - Pick a safe spot when checking tires or freight
- Don't leave truck running unattended
- Don't leave truck without closing and locking all doors truck

Protect Cargo

- Secure and don't leave it unattended
- Use padlock on all doors of trailer or van
- Use kingpin lock whenever trailer is dropped
- Only drop trailer in"secured" area
- Don't discuss your cargo or flash shipping papers when carrying high value cargo, e.g., an invitation to crime

Protect Yourself

- Stay away from dangerous situations
- Don't set yourself up for crime
  - Some truckers setup for blackmail because of heavy debts
  - Avoid gambling and life style that leads to heavy debt
  - Drivers who cooperate by leaving vehicle containing valuable cargo unattended or who arrange to leave keys in truck, are criminal accomplices and can be prosecuted theft of interstate freight is a federal offense
  - Avoid carrying a lot of cash
    - Many criminals know truckers carry large amounts of cash to pay for fuel
    - Use credit cards, if possible
    - Don't flash big wads of cash

Use CB to Summon Help if Suspicious

Don't Pick Up Hitchhikers (against FMCSR)

- Illegal in many situations
- An invitation to trouble even if it were not illegal

Do Not Carry a Gun

- Illegal without a permit and a permit is only valid in your home state
- Need permit to carry gun and its hard to get
- If carrying a gun, it can be taken and used against driver
- Don't carry one if it's against State law or company policy
- If carrying high value cargo, company will provide armed security

Summary

- Driving hazards are not the only ones facing truck drivers
- Know all the hazards of your job and take proper precautions
- Don't try to live up to some kind of image, e.g., be a tough guy or hero, safety is more important
- It's your health and your job

Review

Allow time for questions and answer period on nondriving safety hazards

Visual 1

Tips in Dressing Safely for the Job

- Dress Properly for the Job
  - –Protect Your Body
  - –Don't Wear Shorts
  - –Do Wear Heavy Denims
  - –Dress for the Weather
- Protect Your Hands
  - –Always Wear Gloves When Handling Cargo
  - –Use Specialized Gloves for Handling Hazardous Material
  - –Don't Wear Rings or Jewelry When Handling Cargo
- Protect Your Eyes
  - –Wear Shatterproof Glasses
  - –Wear Good Quality Sunglasses
  - –Wear Protective Goggles When Required
- Protect Your Head
  - –Own a Hard Hat and Use It
- Protect Your Feet
  - –Wear Steel-Tipped Safety Shoes or Boots
  - –Don't Wear Sandals or Tennis Shoes

Visual 2

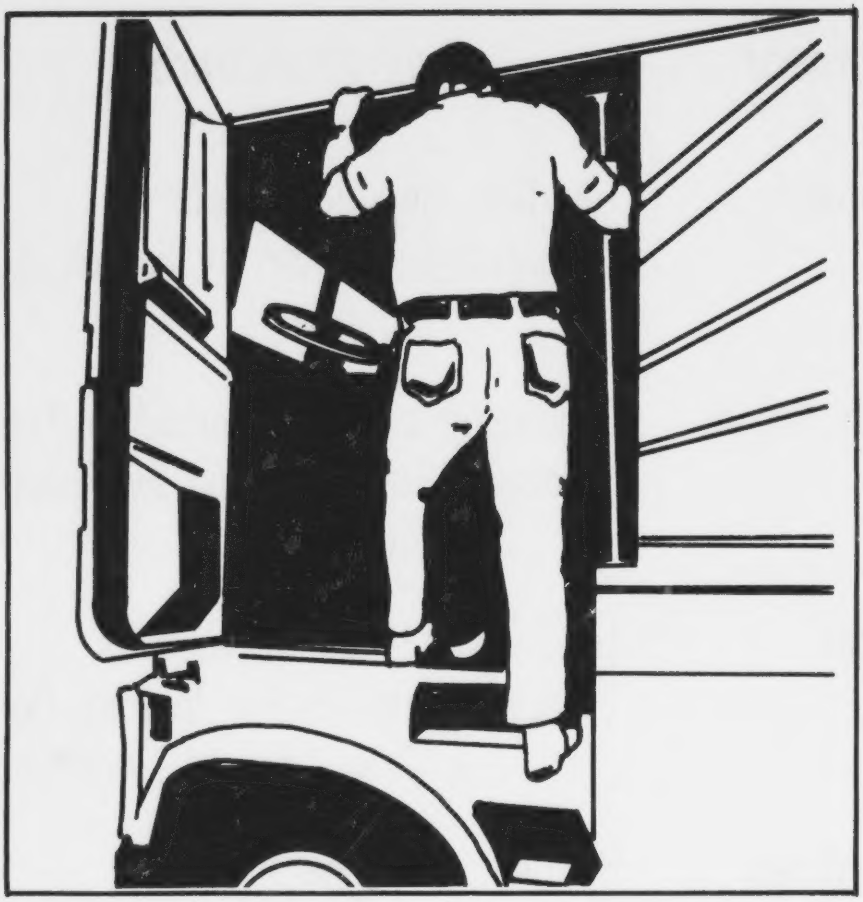
Special Equipment for Driver and Its Uses

Equipment	*Situation/Hazard*
Respirator	Handling Chemical Loads Hazard: Overcome by Fumes, Lung Damage
Splash Aprons	Offloading Liquid Chemical or Fuels Hazard: Burns Caused by Splashing Liquids
Goggles	Loads With Dangers to Eyes Hazard: Serious Eye Injuries Could Mean Loss of Livelihood
Dust Masks	Handling Dry Chemicals Hazard: Respiratory Problems

- Know What Special Equipment to Use When Handling Materials Especially Hazardous Materials!
- Know the Hazards!
- Use the Equipment Provided by Supervisors or the Shipper/Consignee!

Visual 3

Safe Entry or Exit From Cab



Climb in Safely

- Look Before Climbing
- Watch for Slippery Surfaces, Gloves, Boots
- Use 3-Point Contact

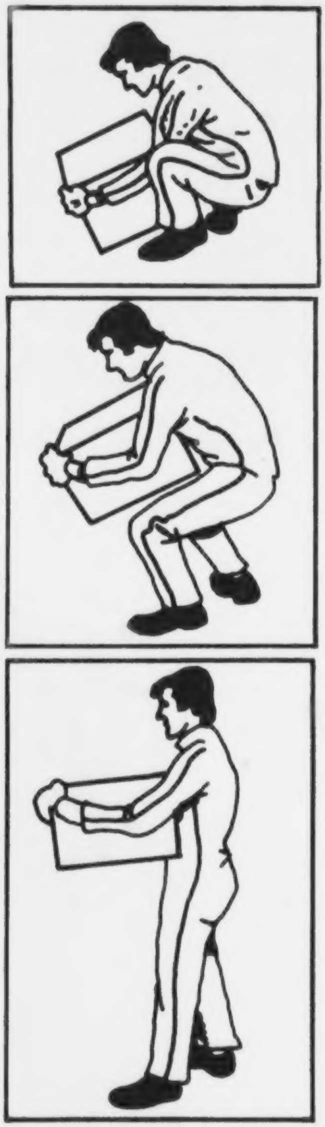
Get Out Safely

- Don't Jump Out of Cab

Visual 4

Six Steps to Safe Lifting

1. Feet Parted–One Alongside, One Behind Object
2. Keep Back Straight, Nearly Vertical
3. Chin Tucked in
4. Grip the Object With the Whole Hand
5. Elbows, Arms Tucked in
6. Body Weight Directly Over Feet



Avoid Twisting:

- Twisting Is Common Cause of Back Injuries

- Turn Forward Foot in the Direction of Movement

READEX FICHE

Safety Precautions During Roadside Emergencies

- Pull Off the Road as Far as You Can
- Make Sure the Surface Can Support Your Vehicle
- Get Out of the Cab Safely
- Set Up Flares
- Be Alert to Oncoming Traffic
- Know How to Make Repairs Safely
- Be Careful of Cold Metal and Hot Tires
- Be Careful Mounting/Removing Snow Chains

Steps in Crime Prevention

Protect Yourself From Crime

- Know and Be Alert to
  - High-Crime Areas
  - Cargos That Tempt Criminals
- Protect Your Vehicle
  - Secure It When Parked
  - Don't Leave the Keys in It
    - Don't
      - Park in Dimly Lit Areas
      - Park in High-Crime Areas
    - Do
      - Park in Well-Lighted Areas
      - Check the Cargo and Vehicle for Security
- Protect Yourself
  - Don't
    - Flash a Lot of Cash or Credit Cards
    - Pick up Hitchhikers
    - Be a Vigilante (Let the Police Carry the Guns)
    - Set Yourself up for Blackmail
    - Watch Out for Drinking/Gambling Debts

LESSON 3 THE TRUCK DRIVER'S ENVIRONMENT (CLASSROOM)

Overview

Time Allotted: 1 hour 15 minutes

Prerequisites: Unit 5.5, Lesson 2

Purpose

Most over-the-road accidents are preventable and the major cause of those accidents are driver error. The purpose of this lessson is to review on-duty and off-duty stresss that lead to conditions that result in driver error. A model of good physical, mental and emotional habits summarizes the presentation. The lesson ends with two short scenarios in whch the students will discuss the on- and off-duty actions of two young drivers and the probable safety consequences.

Materials

Instructional Adis

Visuals 1 - 3

Student Material

Two scenarios (which describe experiences of two novice truck drivers) for use in class discussion, in Unit 5.5 of Student Manual

Instructor

Scenarios A. and B. which describe experiences of two novice truck drivers for use in class discussion (reprinted at end of lesson)

Instructor should have both knowledge and experience necessary to be able to lead discussion about on-the-job pressures (especially for new drivers) and the effects of emotional stress on a driver's job performance

Content

Activity or Topic	Approximate Time
1. DRIVER ERROR: THE MAJOR CAUSE OF TRAFFIC ACCIDENTS	10 minutes
2. ON-AND OFF-DUTY JOB STRESSES	25 minutes
3. CLASS DISCUSSION	40 minutes
	1 hour 15 minutes

1. DRIVER ERROR: THE MAJOR CAUSE OF TRAFFIC ACCIDENTS (10 minutes)

Visual 1 Causes of Traffic Accidents

Direct Causes of Traffic Accidents

Vehicular Causes

Defects, poor maintenance, vehicle abuse, lack of adequate inspection
Overloaded or improperly loaded vehicle, e.g., shifting cargo
Improperly operated vehicle, e.g., driver uses improper brake techniques on mountain road and burns out brakes

Environmental Causes

Slippery roads, e.g., rain, snow, ice
Poor visibility, e.g., fog, haze
Lack of lighting, e.g., dusk and dawn driving, headlight glare
Poorly designed and/or maintained roadways or traffic devices, e.g., potholes, stop signs hidden by branches, exit ramps too sharp for heavy duty vehicles

Driver Error is Main Cause

Driver is only one who can prevent an accident
Can exercise good jugment and adjust to vehicular and environmental problems before they happen
Statistics show in 80-90% of accidents, involved driver made one or more errors
Professional drivers should make few, if any, errors

Underlying Causes of Driver Error

Driver errors usually caused by one or more underlying causes

Common Underlying Causes

Improper visual perception habits, e.g., seeing habits
Inattention or preoccupation with personal problems
Driving while impaired, e.g., when fatigued, when ill and/or taking over the counter or prescribed medication, when affected by alcohol or other drugs
Trying to make up for lost time, e.g., stayed too long on coffee break, took an unauthorized break and had to speed to make up time
Emotionally immature, e.g., shows off for friends, other truck drivers, becomes aggresive on the road when upset
Lack of technical knowledge of vehicle and driving requirements
Not able or willing to recognize limitations

Recap

Driving tractor-trailer is full-time job
Requires 100% of driver's attention at all times
Nobody can "drive" a problem and a rig at same time
Either park the "problem" and drive the rig or par the rig and "drive" the problem - one or the other--no one can do both at the same time

2. ON- AND OFF-DUTY JOB STRESSES (25 minutes)

Stress Leads to Driver Error

Job and living stresses often underlying causes for driver errors
Demands of job and living lead to fatigue, preoccupation, nervousness, poor physical, emotional and mental health
The result: Driving error and accident

EXAMPLE 1: Job stress
Driver pressured to make schedule that is too tight
Drives too fast, follows too closely, many anxieties
Result: An accident

EXAMPLE 2: Off-duty stress
Driver has financial problems, preoccupied with them while driving.
Result: Does not pay attention, accident occurs.
Either park the problem or park the rig--no one can drive both of them safely at the same time.

Visual 2 Job Demands and Stresses

Job Demands

Job of professional truck driver demands that he be in top condition at all times
Normal job demands tax driver physically, mentally, emotionally
Any added stress increases chances of driver error and accident

Job Conditions That Lead to Physical/Mental Fatigue

Constantly Changing Schedules and Frequent Short Notices to Report For a Run

New drivers who lack seniority often on "extra-board"
Must fill in on short notice for sick or vacationing drivers or unexpected runs
Results:
- Not enough rest
- Interrupted sleep cycles
- Can't take care of personal chores, and worry about them

Economic Pressures

- Demands to meet schedules, to retain the job leads to economic pressure
    - Warning letters about not meeting schedules increase job anxiety
    - Trying to get extra trip in during the week means driving longer hours, driving faster, less time off duty
- Results:
    - Long driving hours without sleeping
    - Long driving hours without eating
        - An improper diet takes toll
        - Worsens already existing physical/mental stress by not eating or eating improperly

Delays at Terminal

- Occur at terminal waiting to be loaded and dispatched
- Result: Stress from efforts to keep schedule

Delays Enroute

- Lead to:
    - Hasty loading/unloading and accidents
    - Driving too fast to make up time
    - Tailgating in anxiousness to try and pass vehicle ahead

- Results:
    - Added physical, mental, emotional stress

Poor Layover Conditions

Lonely, away from home, etc. are invitation to poor health habits, e.g., not getting enough to eat, drinking too much, watching television, playing pinball and video machines, instead of sleeping

Poor facilities also contribute, e.g., noisy, uncomfortable motels, resturants not geared to give driver nutritional meals

Physical Demand of Job

Constant requirement for visual and auditory monitoring, e.g., must pay detailed attention to what is going on

Long periods in upright steering position leads to extreme discomfort and fatigue

- Steering an oversize wheel
    - Much more physically demanding than driving a car
    - Driver fatigued more quickly

- Other physical and mental demands of driving
    - Paying attention to detail in shifting, backing, parking
    - All contribute to both physical and mental stress

Nondriving tasks also sap physical and mental energy, e.g., vehicle inspection, cargo handling, coupling and uncoupling

Over-the-Road Vibration

- Rough road vibrations have a negative effect upon driver's physical condition
- Noise levels effect mental condition of driver and add to fatigue
  - Excessive noise heightens effects of nervousness and anxiety to any driver already worried or preoccupied about getting job done, e.g., makes existing job pressures worse

Administrative Requirements

- Frequently changing and sometimes conflicting Federal/State/Local and company/union rules and regulations
- Paperwork demands, e.g., filling out logs, trip reports, shipping papers, mileage reports, keeping track of tolls, etc.

Recap

- Many phases of truck driver job environmental can create physical and mental stresses
- Off-duty stress make job stress even more difficult to handle
- Must be in top physical and mental shape just to cope with normal, everyday job demands and stresses

Visual 3 Off-Duty Habits Which Affect Job Performance

Off-Duty Living Habits and Problems Affect Job Performance

Poor Health Habits

Poor Diet Habits

- Increases likelihood of stress leading to errors
- Diminishes alertness and ability to react promptly to hazards
- Leads to long-term health problems which affect drivin skills, e.g., poor eyesight, heart problems, contributes to emotional fatigue
- Overeating leads to obesity and all its side effects, e.g., discomfort in the cab, decreased ability to meet physical requirements of job

- Leads to lack of muscle tone which is needed to combat stress

Poor Exercise Habits

- Leads to poor physical condition
- Decreased ability to meet physical, mental demands of job
- Exercise helps driver relax and cope better with stress and/or anxiety

Poor Rest Habits

- Major source of fatigue which leads to inattentiveness, lack of alertness, poor visual perception
- Makes driver easily upset, e.g., when tired cannot cope as well as when rested, and makes more mistakes when upset

Living Problems

- Even well-trained, experienced physically fit driver affected by living problems

- Effects of worry and anxiety
  - Set up for drinking, drugs
    - Driver makes poor decision, decision making is crucial tasks in driving
    - Driver preoccupied with problems, preoccupation causes accidents

- Effects of anger
  - Negative living problems also cause anger, e.g., fight with wife or boss, not happy with job
  - Anger leads to over aggressive driving, e.g., tailgating, and speeding
  - Over-aggressive driving leads to serious driving errors and causes accidents

- Must be alert for serious home and job problems that affect ability, e.g., divorce, illness or death of close one, domestic conflict, unhappy about job conditions or pay
  - Driver needs to learn to separate living problems from work
  - Must be smart enough not to drive when they are unfit to drive

Responsibility of Professional Driver to Stay in Shape

Professional driving is a serious responsibility

Anything that interferes with driver's physical, mental or emotional state contributes to poor performance

Driver responsible for maintaining "professional edge" both on- and off-duty

Failure to do so results in accidents, the mark of a nonprofessional driver

Review

Instructions

Ask students to briefly discuss effects of physical or mental stress they have experienced. Try to get students to relate worries about living problems which did effect their driving ability, e.g., were there times they went too fast, or followed too closely, because they were thinking about another problem, were angry, or were prematurely fatigued from worry or anxiety.

3. CLASS DISCUSSION (40 minutes)

Instructions

Two short scenarios follow at the end of this lesson. Each one illustrates brief periods in the lives of two novice truck drivers.

Ask students to read both scenarios (which are in Student Manual in this unit).

Discuss scenarios with students and ask them to:

Identify off-duty and job stresses which affect driver
State relationship between stresses and possible physical, mental and emotional state of driver, e.g., fight with wife means preoccupation with problem while driving
Identify real or potential legal violations, e.g., neglected to do an adequate job or pre-trip inspection, did not maintain current driver logs
Predict potential driver errors, e.g., will probably drive too fast for conditions, will likely have poor visual search, e.g., seeing patterns

Specific problems which should be identitied in each scenario are

Scenario A

Off-duty stresses, new marriage, bills, fight with wife cause driver to be preoccupied and inattentive.

Lack of adequate rest and poor diet will probobly lead to early fatigue and its effects.

Lack of planning evidenced by fact he took money from wife's purse. He is obviously not ready for this trip.

Possible log errors because of haste. Could lead to legal trouble and delay.

Hasty hookup and totally inadequate pretrip inspection. There could be something wrong with vehicle that will lead to breakdown.

Possibly took wrong trailer which will get him into a lot of trouble. (All due to his haste and preoccupation).

Didn't notice problem with trailer that could be several flat tires, etc. (All of which should have been identified in pretrip inspection).

Scenario B

Did not get proper rest because of partying.

Suffers from hangover, making him good candidate for early fatigue and will not be alert.

Not familiar with route or trip plans and did not even discuss with dispatcher.

Not paying attention to road and misuses CB to chatter about rest stop ahead.

Tailgating and speeding in order to make up time so he can take longer breaks.

Looks like he is planning a long break. This will necessitate making up time, which means speeding and in his condition plus an unfamiliar route and a possible snowstorm, this could spell disaster.

(Reprinted From Student Manual)

SCENARIO A

Joe Smith is a rookie driver for the ABC Trucking Company, He has just landed his first real driving job in the business, after an apprenticeship of helping out on the docks and relief driving. Joe is a veteran of several long-distance runs, but it is still pretty new to him. He is also newly married, and the bills are just starting to pile up. The honeymoon is over, and reality has set in.

It's Sunday night and he and his wife, Mary, have just returned from a physically exhausting camping trip. The ride home was not pleasant. Mary kept nagging him about their money problems. They both wanted to move to a new house. But Joe didn't think they were ready for that now. The bickering lasted till at least midnight. Then Joe got the cold shoulder treatment. He knew Mary was probably right because he was spending a lot of money on camping and hunting, money they could use to get a better place to live. He slept fitfully.

The dispatcher's call came at 5 a.m. Be at the terminal at 7:30 a.m. to haul a load of LTL to Boston. It was an overnight trip, a one-man operation. He was short of cash, so he rifled through Mary's purse and got what he needed. In the parking lot of the terminal, Joe hastily updated his Driver's Log.

He fixed himself up as best as he could and reported to the dispatcher and got his papers. He noted that he was assigned to pull trailer #767. His tractor was #676.

He hurried out to the yard. After hastily hooking up, he gave a couple of tires a quick kick, then jumped in his rig and took off.

Once on the road, his mind returned to his problems. He even ignored the fact that the trailer seemed to be pulling a bit hard. Instead, he became very aware of the fact that he was hungry. It dawned on him that he had not eaten anything since coming home the night before.

SCENARIO B

Jim Riley is a new driver at Brown Trucking Company. He has already completed a couple of long sleeper runs and likes his job.

Jim knew he was scheduled for a long haul to Buffalo tomorrow, not a pleasant prospect in January. It meant a layover, and he might have to deadhead to Cleveland to get a return load.

Jim also liked to party. He promised himself that he wouldn't stay out too late. But the party didn't end till well past midnight. He drank a lot of beer. Didn't get too drunk, but sure felt the effects.

Getting up at 7 a.m. was tough. But he made it to the terminal on time. The dispatcher was busy and didn't notice that Jim appeared a little fuzzy. After the routine in the yard, Jim got on the road by 8:30 a.m. He knew he had done a better job of pretrip in the past and made a mental note to give the vehicle a better going over at the first rest stop. Except for Route 35 at the beginning of the trip, the rest of the route was not familiar to him. He hadn't had time to really go over the instruction and would look at them later. He remembers the dispatcher mentioned something about a detour and bad weather (possibly snow or sleet) ahead. So he turned on the radio full blast to get the weather and listen to music. It would help keep him awake too.

What was needed now was coffee. Chet's Diner was a great place to stop and was just outside of town before Route 35. It would put him a little behind schedule, but the cops were never around on that first stretch of Route 35. Traffic always moved a little faster, so he would make up some of the lost time.

Jim felt a little better now. Traffic was picking up and he pushed along right behind a small import. "C'mon. Get over in the right lane," he thought, "I don't want to spend all day getting to the diner."

He turned off the radio and flipped on the CB. He paid a lot of attention to that CB trying to get up chatter with some other drivers and maybe some company at the diner. The clouds darkened as he passed the time with another CB'er. Jim thought, "Only 15 more minutes to Chet's Diner."

(End of Reprint From Student Manual)

Causes of Traffic Accidents

Vehicular Causes

- Defects, Vehicle Abuse, Poor Pretrip Inspection
- Overloads and Improper Loads, Shifting Cargo
- Improper Operation of Vehicle

Environmental Causes

- Slippery Roads
- Poor Visibility
- Lack of Lighting
- Poorly Designed Roadways or Traffic Devices

Driver Error

- Can Overcome Vehicular and Environmental Problems With Good Judgment
- 80–90% of Accidents Due to 1 or More Driver Errors

Underlying Causes of Driver Errors

- Poor Seeing Habits
- Inattention or Preoccupation With Personal Problems
- Driving While Impaired (Fatigued, Ill, and/or Taking Medication, Improper Use of Alcohol or Other Drugs)
- Making up for Lost Time and/or Driving Too Fast for Conditions
- Emotionally Immature
- Lack of Technical Knowledge

Visual 2

Job Demands and Stresses	*Results*
• Short Notice to Run	• Not Enough Rest, Interrupted Sleep
• Economic Pressures to Meet Schedule	• Job Anxiety, Drive Too Fast
• Delays – At Terminal – EnRoute	• Stress From Trying to Make up Time
• Poor Layover Conditions	• Improper Rest, Diet
• General Physical Demands of Job – Constant Attention to Road – Long Periods in Upright Position – Over-the-Road Vibrations – Demands of Steering – Non-Driving Duties	• Taxing–Even Drivers in Shape Become Stressed, Fatigued • Drivers Not in Shape, More Easily Fatigued

Visual 3

Off Duty Habits Which Affect Job Performance

- Poor Diet
  - Diminishes Alertness
  - Increases Chance of Accident
  - Leads to Fatigue
- Lack of Exercise
  - Results in Poor Physical Condition
  - Unable to Meet Job Demands
- Lack of Rest
  - Major Cause of Fatigue
- Living Problems
  - Driver Error Caused by Worry or Anxiety
  - Worry and Anxiety Caused by Domestic, Economic Problems
  - Result
    - Preoccupation and Driver Error
    - More Easily Stressed or Fatigued
- Bad Life Situations Show up on the Job
  - Divorce or Unhappy Home Situation Leads to Anger and Anxiety
  - Shows up in Job Performance, More Accidents
  - Fights With Wife or Boss Result in Anger
  - Anger Means Over-Aggressive Driving
    - Takes It Out on Other Drivers

UNIT 5.6
TRIP PLANNING

UNIT 5.6 TRIP PLANNING

PURPOSE

The purpose of this unit is to enable students to plan for safe and efficient trips.

OBJECTIVES

Performance Objectives

Students must be able to

- plan a route from one point to another that is optimal in terms of travel time, fuel costs, potential hazards, and Federal, State and local travel restrictions.
- arrange to secure permits required by the nature of the vehicle, its cargo, and route to be traveled.
- arrange a secure place for vehicle on layovers, especially when transporting hazardous materials.

Knowledge Objectives

Students must know

- the types of vehicles, cargos, and routes requiring special permits.
- State requirements and the procedures for obtaining special permits.
- common map symbols.
- procedures for route planning including preparing paperwork, route selection, and estimating time, fuel, money and personal needs.
- State and local laws and restrictions on vehicle size and weight.

Skill Objectives

Students must be able to

- interpret maps correctly.
- estimate travel time and plan rest stops and layovers.
- estimate fuel consumption and plan fuel stops.
- estimate expense money needed and secure funds and/or credit cards.

Attitude Objectives

Students must believe that

- effective route planning is essential.
- failure to secure necessary permits can result in extensive delay and stiff fines.

LESSONS

Lesson 1.	**Trip Analysis and Trip Procedures (Classroom)**	**3 hours 15 minutes**
Lesson 2.	**Trip Planning Exercise (Classroom)**	**1 hour 30 minutes**

LESSON 1 TRIP ANALYSIS AND TRIP PROCEDURES (CLASSROOM)

Overview

Time Allotted: 3 hours 15 minutes

Prerequisites: Units 1.1, 1.2, 1.3, 5.2 and 5.3

Purpose:

The purpose of this lesson is to enable students to plan the most effective and efficient routing between pickup and delivery points, or start and destination with minimum safety risks and compliance with Federal, State and local commercial vehicle requirements. The consequences of inefficiency and the additional safety risks in failing to adequately plan routes and routing are stressed.

Basic principles of trip planning as they relate to the driver, vehicle and cargo, and environment are first discussed. A detailed discussion of government regulations affecting trip planning follows.

The second half of the lesson concerns itself with practical aspects of trip planning, e.g., trip records, map reading.

The lesson ends with the assignment of trip planning exercises which the students are to complete and report on in Lesson 2.

Materials

Instructional Aids

Visuals 1 - 13

Student Material

A copy of the Federal Motor Carrier Safety Regulations
Five Basic Steps in Planning a Trip, in Unit 5.6 of Student Manual
Steps in Making Your Own Map, in Unit 5.6 of Student Manual
Instructions for Trip Planning Exercise, in Unit 5.6 of Student Manual
Trip Planning Exercise - Report Form, in Ujit 5.6 of Student Manual

Instructor will provide

- o Maps for trip planning exercise including appropriate State/regional map and detailed city map of appropriate city
- o Notebook paper
- o Copies of appropriate State regulations about permits, taxes, weight/size limitations, hazardous materials restrictions

Instructor Materials

A copy of Federal Motor Carrier Safety Regulations. Instructor should refer to the last portion of the Lesson 1 "Assignment of Trip Planning Exercise" for further details about information and materials he is to prepare for the assignment of that exercise.

One or more trucking permit or regulatory guide books such as J.J. Keller & Associates, Inc. "Vehicle Sizes and Weights Manual" and their "Trucking Permit Guide" or other such manuals published by the various trucking industry trade associations consult consult List of Traiing Aids in this manual.

One or more "truckers type" of road atlas, such as the Rand McNally and Company's "Motor Carrier Road Atlas" containing such information (in addition to maps) as routes with low overhead clearances, location of weight scales, ports of entry and other useful information. Another is the "New Truckers Atlas For Professional Drivers" published by Creative Sales Corporation consult List of Training Aids in this manual.

Content

Activity or Topic	Approximate Time
1. TRIP PLANNING PRINCIPLES	30 minutes
2. FEDERAL, STATE AND LOCAL REGULATIONS	55 minutes
3. HAZARDOUS MATERIALS	25 minutes
4. RECORD KEEPING AND TRIP REPORTS	28 minutes
5. ESTIMATING TIME, FUEL AND MONEY	18 minutes
6. MAP READING	15 minutes
7. SUMMARY	6 minutes
8. ASSIGNMENT OF TRIP PLANNING EXERCISE	18 minutes
	3 hours 15 minutes

1. TRIP PLANNING PRINCIPLES (30 minutes)

What is Trip Planning?

Goal: To construct the safest, most efficient route from any one point to another point

Route Selection

- Steps taken to select safest, most efficient trip
- Many factors involved, including type of trip, state/local regulations, type of cargo, weather, traffic conditions
- Most direct route is not always the best route to take
- Safety factors need to be primary considerations in planning routes
  - Areas of hazardous driving, e.g., steep grades, open highways vs. traffic, areas with low bridges, areas which can be blocked during winter
- Efficiency--Whether or not cargo can be delivered within required schedule and with maximum economy

Estimating Time and Cost

- Trucking companies would not be able to stay in business if driver and management did not work together to plan safest most efficient routes in order to meet customer requirements and delivery schedules
- Companies require careful planning to
  - Reduce fuel usage
  - Reduce truck wear and maintenance costs
  - Reduce deadhead mileage
  - All to maximize profits and ensure driver jobs

Complying with Federal, State, and Local Regulations

- Variety of government regulations aimed at protecting public, roadway and driver are factors in planning trip
- Regulations requiring permits and licenses used to raise tax monies to build and maintain roadways
- Regulations restricting vehicle size/weight, type of cargo, road use restriction, e.g., night, day driving, holidays, city truck routes, to balance use of roadway

Consequences of Failing to Plan Trips Properly

- Delays if Driver Does Not
  - Secure proper permits, licenses
  - Plan ahead for weather, traffic
  - Plan shortest, most efficient route
- Excessive Costs
  - Fines for not complying with regulations
  - Time and fuel wasted and excessive wear and tear on the vehicle because of poorly planned routes, selecting bad roads

Safety

Accidents can result from lack of planning to choose best routes e.g., avoiding rural roads, roads with low overhead clearances or that have construction/detours on them

Poor trip routing can cause you to be late and feel pressured to make up time and go too fast

Role of the Driver in Planning Trips

- Driving for regular route carrier
  - Route will already be established
  - Driver strictly forbidden to deviate from route
  - Driver still must:
    - Know whether he has proper permits, enough expense money
    - Be able to discuss route with dispatcher, i.e., must know elements of trip planning
- Driving for irregular route carrier (any type)
  - Gets assistance and advice from dispatcher or other drivers who previously made the same run
  - Must have more indepth knowledge of trip planning whether driver or dispatcher plans trip, e.g., if emergency occurs driver needs to plan a bypass route

Class Discussion: Trip Planning Factors and Why They Are Important

Instructions

Students already have a knowledge of trip planning factors from their experience driving cars and from knowledge gained in previous units in this course. Before you review the principles and regulations involved in trip planning, get the students involved by holding a brief class discussion to summarize their knowledge and ideas and to imprint on them the importance of trip planning.

The purpose of the discussion is to identify obvious factors in trip planning and to state their importance, e.g., the need to investigate detours and road closings to prevent delays. This brief class discussion will set the stage for your more detailed presentation on trip planning principles, government regulations affecting trip planning and basic trip taking skills, e.g., map reading.

Guidelines for Discussion

List the following key categories on the blackboard:

1. Driver, e.g., hours of service regulations
2. Vehicle type, size and weight and type cargo involved
3. Environmental factors, e.g., weather, traffic conditions

Ask students to identify trip planning factors that relate to those categories and to state the importance of a particular factor

Try to obtain about five key items for each category

Help students get started by giving examples, if necessary

Summarize the discussion by stressing the importance of planning trips based on the ideas the class presented.

Limit discussion to about 5 minutes.

Visual 1 Trip Planning Principles

Trip Planning Principles

NOTE: In presenting these ideas, acknowledge the information that was volunteered in class discussion.

To plan trips effectively, student must recognize:
- Type of trip involved
- Factors relating to
  - Driver
  - Vehicle
  - Cargo
  - Environment

Type of Trip

Considerations based on whether trip is local or over the road, length of trip, interstate or intrastate

Local Runs
- Trailer loads
  - One local destination from freight pickup point
  - Easy to plan
- LTL loads
  - Many destinations along the route
  - Must account for delivery items and plan for road access
  - If pickups included, more careful planning required
- Time of trips
  - Usually start in early a.m. before rush hour or just after rush hour
- Types of vehicles
  - Line haul vehicles which have just finished overnight run, medium tractors pulling single axle trailers, straight trucks

Pedal Runs

EXAMPLE: Driver salesman delivering potato chips
- Drives from base in New York to Boston, delivering merchandise to customers along the way
- Lays over in Boston and returns with load of raw potatoes to base in New York

EXAMPLE: Delivers goods to customers from warehouse
- Driver picks up load of merchandise at warehouse, e.g., refrigerators, and spends day making deliveries to customers on planned schedule

Line Haul Operations

- Regular runs
  - Straight through or relay type operations with solo drivers or two-man sleeper-cab teams
  - Drive 10 hours on regular route, lay over and return to home terminal, sleeper teams continue right on

- Irregular runs

Short Relay Trip

- Driver leaves home terminal at regularly scheduled time
- Drives 4 or 5 hours
- Exchanges complete rig with another driver at predetermined point or swaps trailers with him
- Drives it back to home terminal

Long Relay Trip

- Driver travels about twice as far as short relay trip from home terminal to exchange point
- Takes maximum advantage of 10-hour rule
- Rests at turnaround point for 8 hours
- Drives another vehicle back to home terminal
- May need longer layover to meet hours of service requirements or if load unavailable to haul back

Straight Through Trips

- Several day trip, e.g., coast-to-coast run
- Driver works 10 hours, sleeps 8 hours in motel or other resting place
- Repeats work/rest cycle until trip complete
- May or may not pick up return trip to home terminal
- May have to travel several weeks with variety of loads to different destinations until he can be dispatched back into home terminal again

Sleeper Operations

- Same as straight through trip except co-driver is used
- Driver and co-driver split working and resting time
- Co-driver sleeps in sleeper berth while other person drives
- Regular stops made to eat, shower, purchase fuel

Return Trip

- May uncouple and pick up another trailer at destination
- May need to go to another terminal (or shipper) to pick up a return load
- Not unusual for sleeper team to be on the road for several weeks before company can arrange a dispatch that brings them back into their home terminal again

Factors Related to Driver

- Primary consideration must be given to own abilities and limitations, e.g, not familiar with route, not used to driving at night
  - Proper rest to take trip
  - Hours of service regulations compliance
    - Enough time available for trip
    - Trip planned to comply with hours of service
  - Personal planning needs, e.g., expenses, planning for rest and fuel stops

Factors Related to Vehicle

- Selection of route based on many factors related to vehicle
  - Number of trailers permitted, e.g., doubles not allowed in some States
  - Number of axles required for gross weight
  - Overall weight restrictions, e.g., vehicles restricted from States or certain roads because of overall weight
  - Overall length restrictions, e.g., vehicles restricted from States or certain roads because of overall length
  - Clearance requirements, e.g., height and width of vehicle
  - Avoidance of steep grades or curves because of vehicle size

Factors Related to Cargo

- Type of cargo, weight and center of gravity affect trip planning

  - Restrictions on hazardous materials
    - Restricted areas
      - Hazardous materials may be restricted from certain roads, bridges, tunnels, e.g., Type A explosives
    - Avoid populated areas
      - May be required to plan trip to avoid populated areas for some hazardous materials
    - Need for safe havens
      - Certain hazardous materials can only be parked overnight in designed "safe havens"
  - Characteristics of cargo load
    - Liquid or top heavy loads pose difficult handling problems
      - Plan to avoid steep grades, rural curving roads if possible and/or practical to do so
    - Very heavy loads--avoid routes with steep grades
  - State and local requirements
    - Trip permits, taxes, etc.
    - Traffic laws or local regulations effect route selection or timing of trip, e.g., local speed limits, parking restrictions, alternative truck routes

Factors Related to Environmental Conditions

- Weather and traffic conditions to be encountered at times of day, e.g., stop and eat during rush hour
- Roadway characteristics:
  - Avoid low clearances
  - Avoid older roads or bridges that will not support heavy vehicles
  - Steep grades or sharp curves

Toll roads vs nontoll roads--consider time saved, vs. expense
Avoid local traffic congestion, e.g., bypass shopping centers
Use limited access highways which have better safety record

Recap

Route selection and planning depend on type of trip and cargo and other variables.
Failure to plan can result in delays, economic loss or unsafe trip

2. FEDERAL, STATE AND LOCAL REGULATIONS (55 minutes)

Trips must be planned to comply with all government laws and regulations

Federal, State, and local safety regulations
State regulations requiring permits and payment of taxes
Federal, State, and local vehicle weight/size limitations
State and local traffic laws and ordinances

Federal Regulations

NOTE: Most Federal regulations discussed in earlier units.

Two types:
ICC--regulates economics (routes, rates, etc.) of for-hire motor carriers

DOT--regulates safety of vehicles and drivers

Factors in trip planning and trip taking:
Pretrip and enroute inspection requirements
Hazardous material requirements
Maintenance of logs and compliance with hours of service

State Regulations

Variety of State agencies regulate motor carrier operation in their states, e.g., Public Service Commission, Public Utilities Commission, Railroad Commission, Department of Motor Vehicles, State Departments of Transportations
Major concerns of State regulators:
Size and weight of vehicles and potential impact on traffic flow and damage to highway
Trucks pay fair share of tax burden and have adequate insurance
Trucks carrying hazardous materials that may be danger to residents of State
Two key concerns for truckers:
Permission to operate within a State by payment for permits and special taxes
Restrictions and rules related to vehicle weight and size

Visual 2 Port of Entry Procedures and Examples of Cab Card

Permission to Operate Within a State

- Port of Entry Procedures (not all States have this)
  - Operating permits called "port of entry" forms issued at State borders for interstate trucks
    - Allow truck to use roads of State
    - Fees help State collect fuel and/or road use taxes
  - Basic Type of Permits
    - Permanent trip permits for frequent, regularly scheduled carriers
    - Single trip permits for occasional travelers through State
      - Issued for 24-or 72-hour period
      - Usually cost the same
      - Best to obtain 72-hour permit in case of delay in State
    - Certificates of insurance, vehicle is carrying amount of insurance required by that State
  - Permit Numbers and Gross Weight Limit Numbers
    - Permanent permit numbers and gross weight limitation of vehicle issued by State for interstate truckers
      - ICC controls numbering system
      - Numbers stenciled on side of cab
    - State PUC or PSC issues permit numbers and gross weight limitations for vehicle operating in intrastate only operation
    - Stenciled on side of cabs
  - Cab Cards
    - Stamps issued to show authority to operate in the State
    - Pasted on cab card and kept in vehicle
      - Authority fees vary widely from State to State
      - Use in lieu of permit numbers stenciled on side of cabs

Visual 3 List of Permits and Taxes Where Reciprocity Occurs

Reciprocity Agreements

- 50 States all too often means 50 sets of rules
- Situation eased somewhat by reciprocity agreements, i.e., some States recognize permits, registration of certain other States
- Recognize or share expenses for permits, registration or special taxes from other States

State Registration and Taxing Requirements Affected by Reciprocity

- Driver's License Requirements
  - Classified vs. nonclassified vs. "For hire" licenses
  - 50 States means 50 sets of rules
  - Driver only has to be licensed in his home State (where he resides)
  - Check with State Department of Motor Vehicles for requirements, e.g., class of license, medical requirements, need for road test

Vehicle License Plates and Registration

- Registered in home State - called "base plate"
- Registration and license plate requirements for other States varies

No Requirement (full reciprocity)

- Some States recognize and accept all heavy vehicle license plates

Limited Recognition

- Recognize license plates for neighboring State(s) only
- Only certain vehicles need additional plates, e.g., vehicles over 12,000 GVW in Iowa
- States require "Letter of Reciprocity"

Prorated Registration Fees

- States "share" registration fees
- Plates required for each state
- Fees split based on actual usage

License Plates and Registration Required

- No reciprocity
- Exceptions granted through temporary licenses (30 day) or on per trip basis

Special Taxes

- Many States require payment of special taxes annually, per trip, etc.
- Driver must assure that he has proper reports and permits related to these taxes

Weight, Distance and Mileage Tax--Known as the "T.M.T. Tax" (Ton Mile Tax)

- Requirements vary widely
- Mainly based on annual ton mileage
- Some States apply to all heavy vehicles, others to vehicles over a certain GVW

NOTE: Many truckers advertise what taxes they paid with signs saying "This vehicle paid $$$$$ in road taxes last year"

- Fees/taxes must be paid before traveling through States, Motor Carrier Management normally handle this

Fuel Tax

- Paid in accordance with miles traveled through a State
- Fuel tax permit often required in advance
- Other report forms required for driver to record fuel used

Diesel or Special Fuel Permit Tax

- Additional road tax and permit may be required for heavy vehicles that use diesel fuel in many States
- Often required to purchase diesel fuel within State driver is traveling through

Visual 4 Conditions of Major Reciprocity Agreements

Reciprocity Agreements

Agreements which recognize vehicle registration and/or payment of some taxes in other States

Types of Reciprocity Agreements

- Bilateral, e.g., two adjoining States
- Regional, e.g., several closeby States
- Larger interstate agreements, e.g., 20-25 States covering many regions

  Major Agreements

  - The Uniform Proration Agreement
    - 19 States
    - Homestate issues license plate
    - Space for decals purchased from other States in agreement
    - Registration fees split among States
  - Multi-State Reciprocal Agreement
    - 16 States in south eastern and central region
    - Registration plate issued by home State and honored by others if fuel taxes paid up each year
  - The International Registration Plan (IRP)
    - 24 States
    - Single home State registration plate with "apportioned" stamped across it
    - Cab card with additional States in which vehicle can operate
    - Fees determined annually and split on basis of mileage history of vehicle
  - No Reciprocity Agreements
    - As of 1981, ten States not involved in any reciprocity agreements, e.g., New England States, New York, Pennsylvania, Ohio, and Delaware

NOTE: These agreements between States are in a constant state of flux. Instructor must assure currency of material and students, when driving, must keep up with many changes related to permits, reciprocity, etc., as they effect them.

How Reciprocity Agreements Help Driver

- Reciprocity agreements make life easier for multi-State, long haulers, e.g., can travel through States in agreement, if in compliance, without need to check for permits, fuel taxes
- Irregular or occasional operators (usually independents) not involved and must call ahead to States before attempting trip
  - To obtain permits, payment of fuel taxes, that will obtain reciprocity on a pretrip basis

What the Driver Must Know and Do

- When traveling interstate, driver must be sure proper permits paid obtained and taxes paid
- If States are not involved in reciprocity agreement or company does not handle permits, driver should call each State involved
- Sources of information
  - Many commercial and government publications offer addresses and telephone numbers of appropriate State agencies (Taxation and Revenue, Division of Vehicle Safety and Reciprocity, Highway Department Permit Section, Registry of Motor Vehicles), or State Department of Transportation

Recap

State registration, permit and taxing requirements differ from State to State
Reciprocity agreements ease situation somewhat
Driver not expected to learn all details
Must obtain good reference and check ahead with States when necessary

Instructor Presentation of Information About This State (in which school is located)

- Present information about registration and taxes, permits and required taxes for interstate haulers within your State.
- Identify reciprocity agreements your State is involved in.
- Cite example of steps involved in obtaining for registration, permits and taxes.
- Cite example of requirements
- State this in the form of an example of a tractor trailer entering from another State

Size and Weight Limitations

NOTE: As this manual "goes to press" the Surface Transportation Assistance Act of 1982 is coming into effect. Teach the following outdated material as is (to show how it was). Then in the recap you will cover the new regulations under the S.T.A.A. of 1982, teaching students what is now in effect and what has yet to come into effect.

- Vehicle size and weight limitations vary from State to State
- Driver must know limitations on length and weight before making trip
- Size and weight requirements
  - Height--fairly uniform, most States 13.6, some States 14 feet
  - Width--varies from 96 to 102 inches
  - Length--Largest variation
    - 55 feet in many States
    - 85 feet longest (Wyoming)

Prohibition of Five-Axle Doubles

- Five-axle doubles not permitted in 13 States and District of Columbia, mostly eastern and southern States
- Length and weight restrictions for 5-axle doubles vary in all other States.

Length and Weight Restrictions for Five-Axle Tractor Semi's

- Permitted in all States but weight and length requirements vary
- Most States restrict to maximum 60 foot length and at least 80,000 GCW
- Most States east of the Mississippi restrict length to 55 feet with 73,280 GCW or less

How This Affects Trip

- Doubles--some States have to be avoided or doubles broken up at border
- Five-axle tractor semi's--If length and weight does not comply with State regulations, smaller load on 4-axle rig has to be made or State avoided
- Driver must investigate length restrictions before trip

Visual 5 Vehicle Weight Limits

Vehicle Weight

- Restrictions regulated by
  - Load on Tire
    - Allowable weights range from 500 to 800 lbs per inch of tire width
    - Many States do not specify
  - Load on Axles
    - Per axle - allowable weights range from 18,000 to 22,000 lbs
    - Per tandem
      - Allowable weights range from 32,000 to 40,000 lbs
      - Depends on distance between axle centers, i.e., more weight can be carried on widespread tandem as opposed to close set of tandem axles

Gross Weight

- 2-axle tractor, 2-axle trailer - 62,000 to 73,000
- 3-axle tractor, 2-axle trailer - 73,000 to 92,000
- Exceptions to regular size and weight
  - Some turnpikes within State have own size and weight limitations, for example: Massachusetts, New York and Ohio turnpikes

Visual 6 Planning Trip Requirements--State Regulations

Determining Route Within State Based on Vehicle Size

- Within each State additional restrictions are imposed upon use of various roads

Three key factors to be considered:
- Vehicle weight
- Number of axles on rig
- Length of vehicle

Vehicle Weight
- Many State agencies provide color-coded maps that identify load that various roads can carry
- Based on condition of road, weight that bridges can support
- Color codes used on map: red, green, purple
- EXAMPLE: Route #17 is restricted to 34,000 lbs per axle and may be color coded purple

Number of Axles on Rig
- Many States have so-called "bridge laws" stating the maximum weight that may be carried as determined by specific number of axles and stating minimum distance between these axles

Length of Vehicle
- Determine by State or local restrictions on length

Special Permit Hauling

Load having dimensions that exceed State or local ordinances for size and weight require specialized tranport permits, e.g., machinery, buildings, bridge construction girder
- Permits obtained by application to proper agency and with fee
- Permits restrict hours of operation and routes used
  - Hours of operation depend on States
    - Some restrict after sundown
    - Some after sunup
    - Many in peak rush hours
- May be even restricted to specific vehicle and no other may be used
- Usually require special signs, e.g., "oversized load"
- May require escort vehicles, e.g., in front and back of vehicle, with rotating amber lights and signs identifying oversize or overwide load
  - Route selection
    - Many State agencies specify route on permit
    - Sometimes driver has to submit preplanned route
    - Driver cannot deviate from route or time restrictions
    - If detour or delay occurs, must call State/local agency to request change in time or route

Recap of Vehicle Size and Weight Limitations

State and local weight and size restrictions vary
Driver must investigate before trip is made
Key factors are road factor, number of axles, and vehicle length
Special hauling permits which restrict time and routes can be issued for oversized loads

Discussion of new federally mandated size and weight regulations as specified by the Surface Transportation Assistance Act of 1982 (STAA-82)

NOTE: As this manual "goes to press" (in 1984) various provisions of the STAA-82 are still being appealed in the courts, the trucking industry is lobbying Congress for changes (especially on the tax portion) and the U.S. D.O.T. is still trying to reach agreement with various states concerning certain aspects of the law. Therefore, it will remain up to the instructor teaching this unit, to secure current copies of the STAA-82 to determine the current status of such items as follows:

Vehicle Weight

20,000 pounds maximum on any axle, 34,000 pounds on a tandem axle and 80,000 pounds overall maximum gross weight. Each State must allow these weights in their portion of the National System of Interstate and Defense Highways as well as to allow reasonable access to terminals and facilities for food, fuel, repairs and rest. Weight changes became effective January 6, 1983.

Vehicle Width

The 96-inch maximum vehicle width was repealed and replaced by a 102- inch width limit

Vehicle Length

As of April 6, 1983, the States may no longer set overall vehicle length limitations. Instead, the States may only limit the length of semi-trailers and full trailers. However, semi-trailer lengths may not be set for less than 48 feet. For doubles, the length of each trailer may not be set for less than 28 feet.

Also, the States must continue to allow the operation of the 28-1/2 foot doubles trailers that were already in operation (as part of 65 foot long doubles combinations). Most importantly, no State is allowed to prohibit the operation of doubles rigs within their borders (a point of bitter protest by a few States).

Taxes

Taxes on new trucks and trailers, parts and accessories, tires, tubes and lubricating oil all were greatly increased for heavy duty rigs. Especially significant to the trucking industry was a "Heavy Truck Use Tax" which was greatly increased and a "Motor Fuel Tax" which raised the diesel fuel tax from 4 cents per gallon to 9 cents per gallon as of April 1, 1983.

Point out to students that fuel, tire and vehicle conservation will thus be of primary importance to fleet owners from now on. Any student who wishes to retain his job must therefore be capable of operating his vehicle as fuel efficiently as possible and to drive it in such a way as to avoid any form of abuse to its components.

Instructor Presents Information About This State

Present information to students on weight and size limitations within your State.

Cite examples of how trip planning is affected and penalties for violating limitations.

3. HAZARDOUS MATERIALS (25 minutes)

Presence of hazardous material cargo affects trip planning.

Must recognize when carrying hazardous material load
Must comply with Federal regulations relating to trip planning
Must know in advance about highways and highway facilities which restrict or prohibit hazardous materials

Visual 7 Trip Planning - Hazardous Materials

Federal Regulations

FMCSR 397.9 Routes

Trips cannot be planned for operator convenience but for safety of public

Requires vehicles carrying hazardous materials to operate over routes that "do not go through or near heavily populated areas, places where crowds are assembled, tunnels, narrow streets or alleys" as far as practical.

Class A and B explosives require written trip plan
  Carrier must submit plan of route that complies with above steps in advance
  Driver is given written plan to follow or may develop plan as agent for carrier

FMCSR 397.7, Attendance and Surveillance of Motor Vehicles--Safe Havens

Motor vehicles carrying Class A or B explosives must be attended at all times

When layover involved in trip, "safe haven" must be provided

Definition--An area specifically approved in writing by local, State, Federal officials for parking unattended vehicles with Class A or B explosives

FMCSR 397.3, State and Local Regulations

All vehicles carrying hazardous materials must comply with state and local restrictions on routes and parking

Note: Refer students to FMCSR 397.5, 397.7, 397.9. Have them read those regulations now. Answer any questions and discuss.

State and Local Restrictions

Transportation of hazardous materials is prohibited or restricted by many State and local governments

Driver must know type of hazardous material hauling and whether it is restricted or prohibited from State/local highway or facilities, e.g., tunnels, bridges

Types of Restrictions

By time of day
Local ordinances may prescribe routes to use, identify parking, stopping, and attending requirements
May be requried to report to fire department before transporting explosives into or through a municipality

Prohibition

Means type of hazardous material cannot be transported on identified highway or facility, i.e., tunnel or bridge

The U.S. D.O.T. publishes list of highways and facilities which restrict hazardous materials transportation
State or local agenices also provide information

Visual 8 Example of Restriction - Hawaii

EXAMPLE: Class A and Class B explosives prohibited from tunnels in example shown. All other classes of hazardous materials may be carried

Recap

All hazardous material trips must avoid populated areas where practical
Written trip plans for Class A and B explosives must be submitted and followed
Need for safe havens must be taken into account when planning trip with Class A and Class B explosives
All State and local regulations must be investigated and complied with
Driver must take into account Federal, State, local regulations about hazardous materials before he plans a trip

Instructor Presents Information About This State

Present information about State and local regulations affecting transportation of hazardous materials by tractor-trailers in your State.
Identify major highways and facilities which prohibit transportation of hazardous materials, cite key ordinances which affect trip planning when carrying hazardous materials.

Summary of First Half of This Lesson

Trips are planned based on key trip planning factors related to
- Driver
- Vehicle
- Cargo
- Environment
- Government regulations

Overview of Second Half of Lesson: Trip Procedures

To be fully competent in trip planning and taking, driver must also know
- Purpose and use of trip records
- How to estimate time, fuel and expenses
- How to read maps and plot trip on map

4. RECORD KEEPING AND TRIP REPORTS (28 minutes)

NOTE: Many of the records discussed were presented in detail in other units, but often in a different context.

Record keeping is part of driver's job
Key factor in trip procedures and planning
Driver must keep some records; others kept by company

Types of Records

Reports required by law or company:
- Freight documentation and freight related reports

- Trip records and expense related reports
- Tachograph and other vehicle performance records which monitor trip and help plan future trips

Key Reports Driver Must Maintain to Take Trip Safely

Driver Logs (Maintaining logs is described in Unit 5.3)

- Trip planning implications
  - Shows on-duty and driving hours available
  - If not current when driver reports, driver can be refused trip
  - Driver can be put "out of service" and lose time for faulty logs discovered during safety inspections

Vehicle Pretrip and Daily Maintenance Reports (Reports described in Units 1.3 and 4.2)

- Delays enroute (breakdowns) occur if maintenance not kept up
- Driver reports are basis of maintenance
- Part of trip procedure is keeping well maintained vehicle and required maintenance records
  - Driver must report defects
  - Defects must be corrected before the next driver takes over
  - Defect report identifies those that must be corrected for safety of other drivers and public
- Federal law required daily pretrip inspection and daily maintenance reports
- Carriers have developed their own maintenance reports
- Driver safety depends on these reports

Freight Documentation and Related Reports (Reports described in Unit 5.2)

Trip manifest, bills of lading, delivery receipts, aid in trip planning
- Shows destination and gives delivery instructions
- Help determine nature of cargo, i.e., hazardous vs nonhazardous
- Key factor in route selection in local pickup and delivery trips

Driver must
- Fill out freight documents properly
- Review for trip instructions
- Pay particular attention to special instructions for various types of hazardous and nonhazardous cargos

Trip Records and Related Expense Reports

Required to help driver plan trip, record expenses and events on trip

Importance to Driver

- Basis of pay and reimbursement
- Documents delays and other factors relating to keeping on schedule
- Provides a record of fuel used and mileage traveled

Trip Records and Expense Record are Driver Responsibility

- Responsible for maintaining variety of trip and expense records
- Type of record depends on carriers' procedure and specific forms used by carrier
- Must become familiar with procedures and forms to assure accurate pay and reimbursement

Trip Reports

- Basic company record
- Shows sign in and sign out time
- Identifies vehicle number
    - Speedometer readings at various points in trip
- Record of maintenance also shown
    - Lists of defects, whether or not corrected
    - Record of trouble on the road or delays
    - Lists accidents and road breakdowns
    - Provides space to explain delays enroute
- Importance of trip reports
    - Basis of pay in many cases
    - Record of mileage and trip delays
    - Often requires supporting documents
        - Driver must be aware of documents or forms required to support information on trip reports
        - Daily trip rate or similar forms to support hours worked and basis of pay
        - Accident forms and maintenance forms to document accidents/breakdowns
        - Mileage and fuel use records to document mileage records
- Driver procedure
    - Forms are basically self-explanatory
    - Learn company rules and procedures for filling out
    - Be accurate and neat
    - Keep all supporting documents required

Expense Records

Drivers must know expense and reimbursement policy and procedures for company they work for

Needs money or credit to pay for variety of items
Food, fuel, cargo handling help, miscellaneous items related to work

What driver needs to know
What items must come out of his pocket

What items does company pay and reimburse him for
- Procedures for documenting reimbursement
- Forms that have to be filled
- Receipts that must support claims
- Can company charge be used?
- What circumstances, what items?

EXAMPLE: Expense account record:
- Over-the-road trips require food and lodging
- If company pays, driver must keep records for reimbursable expenses
- Procedures for expense accounts vary
  - What is reimbursable, limits allowed, etc.
  - Procedure for paying and then getting reimbursed, e.g., cash, personal credit card, company credit card
- Supporting documents e.g., toll receipts, cash receipts for meals and lodging

Visual 9 Example of Mileage and Fuel Record

Mileage and Fuel Records

Companies have a variety of mileage and fuel records
- Mileage records
  - Often show beginning and ending mileage for each State traveled
  - Support claims for fuel costs
  - Show time spent in State for fuel tax purposes
- Fuel records
  - Driver must know company method of paying, reimbursing for fuel
    - May be given fuel card to use at authorized company stops
    - May need to record purchase and amount of fuel used
    - Most records are self-explanatory
- Driver must be aware that fuel, mileage forms support and are cross-referenced to other claims

Tachograph Programs and Other Monitoring Records

Many systems and records designed to monitor and improve driver performance related to
- Fuel usage
- Time between stops
- Safety
- Adherence to company rules

Methods

Fuel Trip Records

Already discussed

Supervisory Observation

Supervisor accompanies driver to monitor performance and discover problems

Tachographs

- Precision instrument that records on chart:
  - Speed of vehicle
  - Engine speed
  - Distance traveled
  - Time (so location can be identified)
- Purpose
  - To see if vehicle operated in most efficient manner
- Detects:
  - Excessive idling (zero mph)
  - Exceeding speed limit (over 55 mph)
  - Improper shifting (over-revving)
- Procedure
  - Driver should not tamper with instrument or chart under any circumstances
  - Most tachographs are made so that tampering can easily be detected

Trip Recording Computers

- Some fleet trucks equipped with trip recording computers
- Provide more detailed data on trip than tachographs
  - Sensors on vehicle components measure operation, e.g.:
    - Temperature
    - Rpm
    - Direction of motion
  - Electrical signals recorded:
    - On magnetic tape
    - In microprocessor (small computer)

Benefits to Driver

- Not just methods for catching drivers in errors
- Help improve driver performance, safety
- Aid companies in making trip analyses
  - Can determine if relay points are close enough, i.e., driver can make them safely with existing speed laws and conditions
  - Will result in better planned, safer routes for driver

Recap

Record keeping key part of trucking industry and driver's job
All records related to trip procedures and planning in some way

Driver must become familiar with purposes, procedures for records he must maintain

Designed to aid him in planning and making safe and efficient trips

Instructor Presents Examples

Present examples of trip records you have obtained from trucking form publishers and/or local trucking companies. Also, if students are not already aware, present and discuss any trip forms or expense forms used by this school.

5. ESTIMATING TIME, FUEL AND MONEY (18 minutes)

Trip Planning Requires Practical Skills

- Estimating Time of Trip
  - To plan stops
  - To know approximate arrival time
  - To meet schedules
- Estimating Fuel Usage
  - Must know range of vehicle
  - To plan fuel stops
  - To have enough money/credit to purchase fuel
- Estimating Money Needed

Visual 10 Formulas and Examples of Estimating Times, Fuel and Expenses

Estimating Time of Trip

Formula

Time = Distance ÷ Average mph

EXAMPLE: 100-mile trip averaging 40 mph (100 ÷ 40) equals 2-1/2 hours

Averages Used by Some Truckers

- Eastern States--noninterstate highways
  - Time equals distance divided by 41 mph
- Eastern States--interstate highways
  - Time equals distance divided by 47 mph

Factors Considered in Average Mph

- Stops and layovers
- Adherence to hours of service regulations
- Varying speed limits
- Time of day (night versus day speeds)
- Volume of traffic

Trips and Trip Times Usually Plotted by Carrier

- Driver will be given estimated time of arrival
- Trip times based on experience on the run
- Driver may need to estimate time in certain situations
  - Irregular runs
  - Owner/operator situation

In Estimating Mph--Be Realistic

- Investigate weather, traffic, other conditions which effect average mph
- Keep safety in mind
- Plan to avoid fatigue

Cannot average maximum speed limit
    If speed limit is 55 mph on all roads on trip, cannot average 55 mph
    Stretches of road will be slower due to weather, hills, traffic etc.
    To average 55 means going over 55 and breaking the law

Estimating Fuel Usage

Determine range of vehicle
    Range = Tank capacity x mpg
    EXAMPLE: 100 gallon tank on vehicle averaging 8 mpg equals range of (100 x 8) 800 miles
Factors considered in mpg
    Startup time uses more fuel
    Each stop and start means using more fuel
    Idling uses fuel at zero mpg
    Condition of vehicle
        Poorly maintained vehicle gets less mpg
    Condition of driving
        Average less in stop and go in city
        Average less with poor driving skills, e.g., speed up, slow down, not stopping smoothly
Why fuel estimation is important
    To be able to plan fuel stops efficiencly
    EXAMPLE: 1,000-mile trip in vehicle used as example would mean at least one fuel stop
    Companies usually plan fuel stops
    Should fill up tank when stopping for the night
    Driver needs to know vehicle range to be safe
        Running out of fuel can cause great delay
        Problem described in Unit 4.1, Vehicle Systems (under "Fuel Systems")
    May need to estimate fuel cost for cash on hand or charges

NOTE: Present data on school vehicles, e.g., capacity of tanks, mpg in highway/city/combined driving, range of vehicle in highway/city/combined driving.

Estimating Money Needed

Driver must plan ahead for money required to take trip, e.g., two key factors in determining money needs

Type of Trip

Distance and time of trip
Nature of trip, i.e., requirements for:
    Meals
    Layovers
    Rest stops
    Fuel stops
    Tolls
Requirement for emergency funds:
    If weather forces unexpected layover
    If tow is required

Type of Financial Arrangements

- Company requirements and policy dictate type of planning driver has to do
- Independent truckers must do all their own planning
- All truckers must know type of financial arrangements they are dealing with and plan accordingly, e.g., pay as you go, cash advances, credit card use
- Before leaving, driver should have arranged for needed cash or credit

Recap

Time, fuel and money estimates key part of trip planning

Driver needs to investigate procedures depending on type of driving situation involved

6. MAP READING (15 minutes)

Need for Map Reading Skills

- Professional drivers occasionally need to use maps
  - Determine route
  - Locate destination within a city
- Obvious consequences of not using map as aid
  - Driver gets lost
  - Loses time on trip
  - Makes late delivery

Map Reading Skills That Are Required

- Locate starting point, destination and intermediate stops
- Plot route on a map
- Estimate number of miles from point to point using scale
- Read symbols on map

Visual 11 Example of Grid Map

Key Characteristics of Maps

Grid System

- Face of map set in box pattern
- Letters spaced at regular intervals on top and bottom (A, B, C, D, etc)
- Numbers appear down side margins (1, 2, 3, 4, etc.)
  - EXAMPLE: Locating a street:
    - City maps have alphabetical street indexes
    - Find street on index with grid location
    - 29th street, A-3 (Locate on visual)

Map Scale

Shows direction (N, S, E, W)
Number of inches represent number of miles
Scales are explained on each map
Can be used for rough estimate
Mileage charts give better idea of distance

Symbols

Explanation of symbols usually shown on map
Symbols vary based on type of map e.g., highway maps symbolize type of road, State maps
    May show roads closed for winter
    May indicate elevation of hills, mountains.
City maps may include symbols for schools, churches

Visual 12 Types of Maps, Characteristics, Advantages, Disadvantages

Sources of Maps

Many sources:
    Filling stations, AAA, local governments and tourist organizations often provide free maps (becoming less common)
    Commercial maps and road atlases such as Rand McNally also available

Types of Maps

Highway Maps

Show entire states or regions
Major cities shown in more detail in insets
Features (Examples)
    Vary depending on map
    Show:
        Major routes
        Type of road, e.g., interstate, two-lane
        Toll roads vs freeways
        Population centers and population
        Railroad crossings
        Mileage between junctions
Use--Locate major highways and routes for long distance travels
    EXAMPLE: Identifies various routes from point to point (city to city). Trip planner then investigates routes for safety and efficiency

City Maps

Detailed street maps of all or part of city/town
Street names often unreadable

Street ranges usually indicated to pinpoint location
Numbers often very small
A magnifying glass is helpful
Use--Very helpful in plotting last leg of trip, e.g., locating street address in unfamiliar city

Commercial Book Maps

Usually cover entire city or county
Series of maps in one book
Commercially produced

Locating an Address
Street/place index identifies page/map number plus grid number
EXAMPLE: 124 Main Street, 24, C-5
Map 24, grid location C-5
Usually need more than one map to plot entire trip
Adjacent maps are referenced, e.g., see map 25

Advantages

Used similar to city maps
Easier to read, e.g., larger lettering, numbers, colored features

Disadvantage

Expensive
Find out if you will be reimbursed

Visual 13 Five Step Checklist For Plotting Trip on Map

Using a Map

Steps in Making a Map

Best way to plot trip is make own map
Avoids many stops to check map

Step 1. Materials needed--Notebook paper, sharpened pencils, road map(s) showing present location and destination.

Step 2. Locate present location and destination--Use index if needed.

Step 3. Study map and select route.
Use main highways and streets as much as possible.
Secondary roads have lower speed limits, narrower, more hazardous.
If necessary, investigate other route selection factors.

Step 4. Mark destination and present location on notebook paper on opposite ends of paper.

Step 5. Draw approximate map of route.
Write names of all streets, major highways used, direction of travel on each street, road.
Indicate all turns.
Write approximate mileages when destination (on map) close.
Print all names and numbers in large, easily read letters or numbers.

Tips in Finding Location

Street numbers of buildings (homes, offices, factories, etc.) get larger as they go away from center of town/city
Even numbers generally on east and south sides of street
Odd numbers generally on west and north sides of street
EXAMPLE: 10717 Locust Street on North side of town

Tips in Safe Map Use

Never read map while driving
Avoid frequent stops, e.g., pulling off to side of road to read map

Best Bet

Plan ahead and prepare map on notebook paper using five-step approach

7. SUMMARY (6 minutes)

Five Basic Steps Always Involved in Trip Planning (No Matter What Type of Trip Involved)

Step 1. Make sure paperwork is up to date.
To meet regulations, obtain permits, licenses, cab cards, etc. (company officials and/or driver responsibility).
Driver logs current (solely driver responsibility).
Freight documentation (driver responsibility once on the road).

Step 2. Select the route (Dispatcher and/or driver responsibility).
Many variables involved depends on situation.
Vehicle land cargo restrictions, e.g., length, width, clearance, type of cargo.
Hazardous materials restrictions.
Best route for type of cargo, e.g., avoid curves with sloshing liquid.
Local traffic conditions and regulations.
Weather and other environmental conditions.

Step 3. Estimate time and plan for rest stops (company and driver responsibility).
Driver safety is important.
Need to plan trip to meet schedule but rest stops have to be considered.

Step 4. Estimate fuel and plan for fuel stops (company and driver responsibility).

Step 5. Plan money and other personal needs (solely driver responsibility).
Must understand nature and length of trip.
Must know conditions to expect on the road, e.g., weather, types of rest stops.
Must understand company policy about reimbursements.
Must plan for personal items (money, clothing, safety and maintenance tools).

8. ASSIGNMENT OF TRIP PLANNING EXERCISE (18 minutes)

Overview

The class will be divided into small groups for the assignment of Trip Planning Exercises to be completed outside of class and reported on during Lesson 2.

Instructions

Divide the class into groups of 3-5 students each.

Assign the Trip Planning Exercise to each group by:
- Providing trip information.
- Providing exercise materials.
- Giving student directions.

Provide Trip Information

Must be developed by instructor prior to Lesson 1 and includes:

Points of Trip
- Use the school location as the starting point
- Select a location in a city of an adjacent State as the destination
- Include the street address when specifying the destination

Vehicles and Cargo
- Identify a school vehicle for "use" in the trip since students will need information about vehicle characteristics, e.g., fuel capacity, vehicle range, etc.

Vehicle should be capable of handling specified cargo for the trip. If possible, specify a 3-axle tractor and 2-axle trailer with an overall vehicle length of 65 feet

Cargo
Class A explosives with gross cargo weight of 76,000 lbs

Dispatch Time
8 A.M.

Length of Trip
At least 10 hours

Provide Exercise Materials

Student Manual, Unit 5.6 includes:
- Trip planning checklist as aid in planning trip
- Trip Exercise Report form on which they can record information about proposed trip
- Instructions for plotting a trip on notebook paper
- Summary of student directions for the exercise

Instructor must provide
- Maps--provide students with maps and notebook paper
  - State and/or regional maps for major portion of trip
  - Detailed city map for final leg of trip
- State and local regulations--Provide copies of regulations about trip permits, special tax requirements, reciprocity information, weight/size limitations, hazardous materials restrictions and any other pertinent State or local regulations which could affect trip planning

FMCSR, Part 397, federal regulations covering the transportation of hazardous materials

Give Student Directions

Each group should be directed to do the following:

Hold Meetings
- Meet as a group to discuss assignment
- Appoint a group spokesman during the initial meeting to report on findings to class
- Divide responsibilities based on requirements of the exercise, e.g., one student could review and summarize permit and tax requirements, another could investigate weight/size limitations and hazardous materials restrictions, etc.

Plan the Trip
Use trip planning factors discussed in this lesson and trip information and exercise material provided to complete the following plans:

Compliance with Regulations
Include in the planning a report on permits, taxes and other pertinent federal, State and local regulations which would affect the trip.

Route Selection

Determine the safest and most efficient route based on route selection factors and other factors discovered during investigation of local regulations and requirements

Prepare a handwritten map using five-step approach described earlier under "Summary".

Time, Cost and Fuel Estimation

Estimate time of trip and amount of fuel needed, use data on vehicle characteristics plus distance of trip, average speed, rest and fuel stops, etc.

Estimate money and personal needs for trip including clothing, tools, and other items needed.

Meet after reports have been completed in order to prepare for presentation in Lesson 2 .

Finalize route selection and plot map on notebook at this time.

Amount of time required for the exercise and reporting date.

Completion of exercise requires about 2-4 hours of work for each group if responsibilities divided.

Groups will report findings during Lesson 2 (specify time and date of Lesson 2 if possible). Because of time requirements, Lesson 2 cannot be scheduled until at least 3 days after Lesson 1.

Stress that groups should work independently even though results maybe similar. On the other hand, different approaches and findings will be the basis of informative discussions in Lesson 1.

Present Findings

The Trip Exercise Report Form and map will be prepared for presentation to the class.

In addition to the Exercise Report Form and the trip map, each group spokesman should prepare a brief outline to aid in oral presentation to the class. The Exercise Report Form will serve as basis for presentation outline.

Instructor Preparation

Instructor should complete the trip planning exercise using same steps as students.

Instructor results will serve as an "answer" to aid in critiquing student results.

Instructor may prepare transparencies of map, key ideas examples of trip permits, cab cards, etc. to aid discussion.

NOTE: If same exercise completed by previous class, the "answer" material can be incorporated into curriculum. Instructor still must review material as it will have to be updated for any changes in regulations, road conditions, etc.

Trip Planning Principles

- Know Type of Trip
- Plan Safest, Most Efficient Trip Which Conforms to All Government Regulations

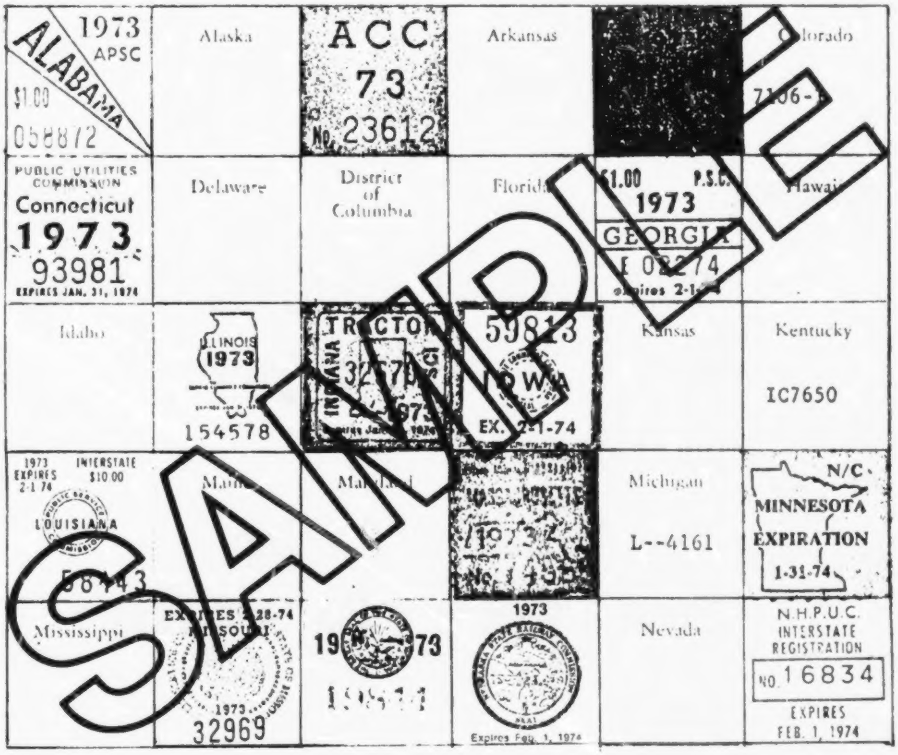
Factors

- *Driver*
  - *Proper Rest*
  - *Comply With Hours of Service*
- *Vehicles*
  - *Number of Trailers Permitted*
  - *Overall Size Limitations*
  - *Clearance Requirements*
  - *Avoid Steep Grades, Hills*
- *Cargo*
  - *Type of Cargo*
  - *Center of Gravity*
  - *Characteristics of Cargo*
- *State and Local Regulations/Laws*
- *Environmental*
  - *Weather*
  - *Traffic*
  - *Roadway Characteristics*

Port of Entry Requirements and Example of Cab Card

- Port of Entry Forms
  - Permanent Trip Permits
  - One Trip Permit
  - 24 or 72 Hours

- Permit Numbers Showing Right to Operate
  - Stenciled on Side of Vehicle With Weight Limitations
  - Cab Cards Serve Same Purpose in Many States


1973 APSC
ALABAMA
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ACC
73
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PUBLIC UTILITIES COMMISSION
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Hawaii
Idaho
ILLINOIS
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EX. 2-1-74
Kansas
Kentucky
IC7650
1973 INTERSTATE
EXPIRES $10.00
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Maryland
1973
Michigan
L--4161
N/C
MINNESOTA
EXPIRATION
1-31-74
Mississippi
EXPIRES 2-28-74
MISSOURI
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32969
1973
1973
Expires Feb. 1, 1974
Nevada
N.H.P.U.C.
INTERSTATE
REGISTRATION
NO. 16834
EXPIRES
FEB. 1, 1974
SAMPLE

List of Permits and Taxes Where Reciprocity Occurs

Reciprocity–50 States Mean 50 Sets of Rules

- Driver's License
  - Home State Only
- Vehicle License Plates and Registration
  - Full Reciprocity With Some States
  - Limited Recognition
  - Prorated Fees
  - No Reciprocity
- Special Taxes
  - Weight, Distance and Mileage Taxes
  - Diesel or Special Fuel Permits
  - Fuel Taxes
    - Paid Annually or Per Trip
    - Some Reciprocity Via Split Fees

Conditions of Major Reciprocity Agreements

Types of Reciprocity

- None
- Bilateral–Between Two States
- Regional–Several Close by States
- Larger Interstate, 20-25 States

Major Agreements

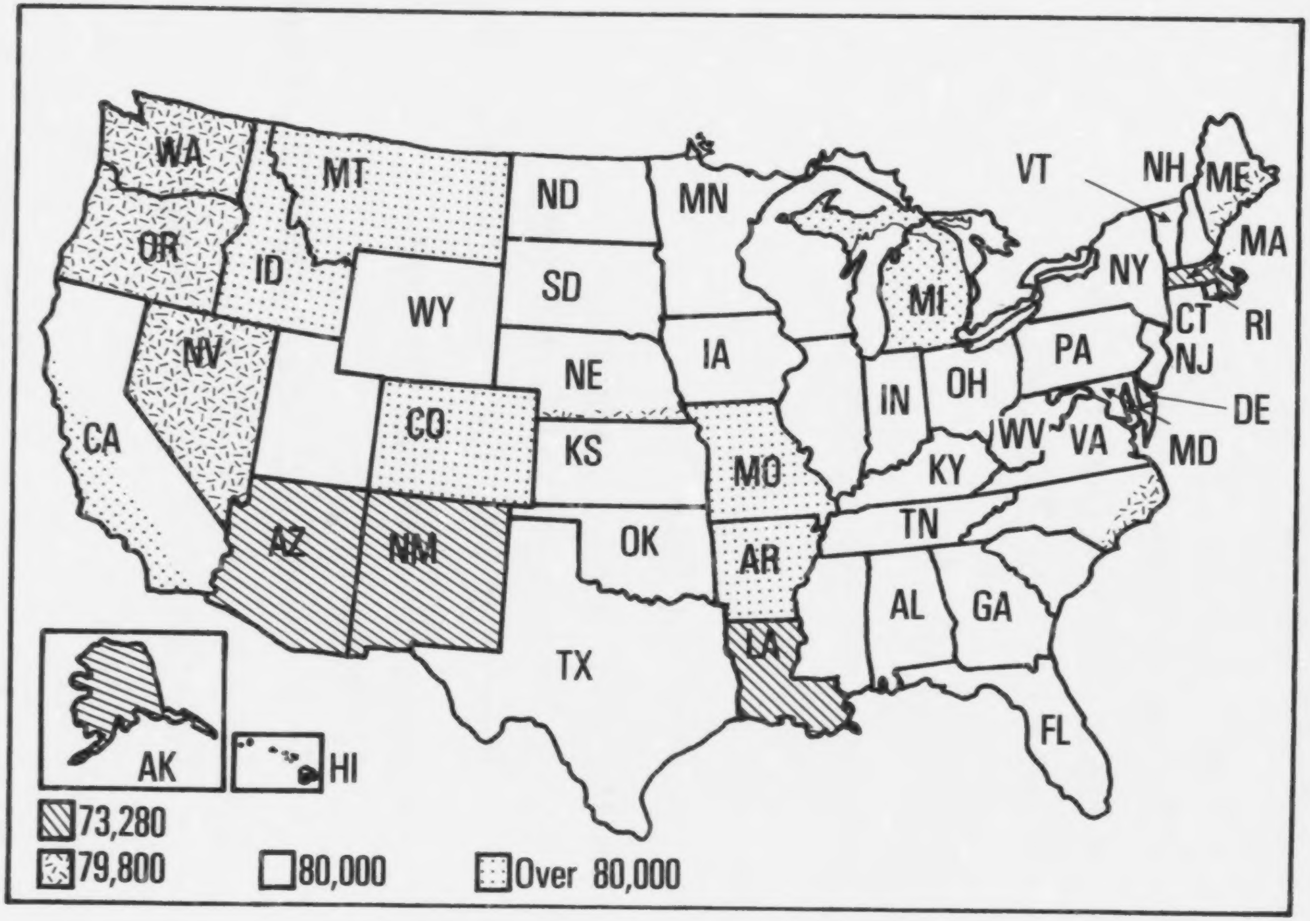
- Uniform Proration Agreement
  - 19 States
  - Home State License
  - Decals for Other States
- Multi-State Reciprocal Agreement
  - 16 Southeastern and Central States
  - Registration Plate Honored by All if Fuel Taxes Paid
- International Registration Plan (IRP)
  - 26 States–Largest
  - Single Home State Plate Stamped "Apportioned"
  - Cab Card for Additional States
  - Fees Determined by Yearly Mileage

Advantages

- Easier for Long Haul, Multi-State Drivers

Maximum Weight Limits

(As of March 1982)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NE
IA
IN
OH
DE
CA
CO
KS
WV
VA
MD
MO
KY
AZ
NM
OK
AR
TN
AL
GA
LA
TX
FL
AK
HI
73,280
79,800
80,000
Over 80,000

Planning Trip Requirements–State Regulations

Three Key Factors

- Road Factors
- Number of Axles on Rig
- Length of Vehicles

Steps

- Identify Weight Restrictions on Highways Via State Provided Color Coded Map

  Example: Route #17 Restricted to 34,000 Lbs Per Axle–Color Coded Purple

- Meet State Weight Requirements Per Axle Load and Tire Load
- Investigate and Meet State/Local Vehicle Length Requirements

Trip Planning–Hazardous Materials

FMCSR 397.9–Routes

- Avoid Populated Areas, Tunnels, Narrow Streets
- Plan Trips for Public Safety Not Operator Convenience
- Class A and Class B Explosives
  - Submit Written Trip Plan in Advance

FMCSR 397.7–Attendance of Vehicles

- Safe Havens for Class A and Class B Explosives When Left Unattended

FMCSR 397.3

- Comply With All State and Local Laws

Visual 8

Example of Restrictions on Hazardous Material Transportation: State: Hawaii

Facility Name and Location	Are Cargos With the Following Allowed to Pass Through the Tunnel or Highway Facility?									
	Explosives A	Explosives B	Compressive Gas	Combustible	Poison	Flammable	Flammable Gas	Oxidizers	Radioactive	Dangerous
Oahu										
Pali Tunnel–SR-61 Between Honolulu and Kailua	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wilson Tunnel–SR-63 Between Honolulu and Kaneohe	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Remarks:

Red Hill Tunnel on Proposed H-3 Route Will Have Similar Restrictions.

No Bridge or Highway Restrictions on Kaui, Maui, or Hawaii.

Mileage Control Sheet

(Speedometer Mileage Readings)

Destination____

Date____________________ Unit Nos.____________________

Driver____

New Jersey

Beginning ________________
State Line OUT ________________
State Line IN ________________
Ending ________________

New York

State Line IN ________________
State Line OUT ________________

Connecticut

State Line IN ________________
State Line OUT ________________

Pennsylvania

State Line IN ________________
State Line OUT ________________

Visual 10

Formulas and Examples for Estimating Time, Fuel and Expenses

• *Estimating Trip Time*

Formula

$$\frac{\text{Distance (100 Miles)}}{\text{Avg MPH (40 MPH)}} = \text{Trip Time (2 1/2 Hours)}$$

Factors

- Weather
- Traffic
- Speed Limits
- Safety and Fatigue Avoidance

• *Estimating Fuel*

Formula

Vehicle Range

Capacity of Tanks (100 Gallons)
×
Avg MPG (8 MPG)
=
800 Mile Range

Factors

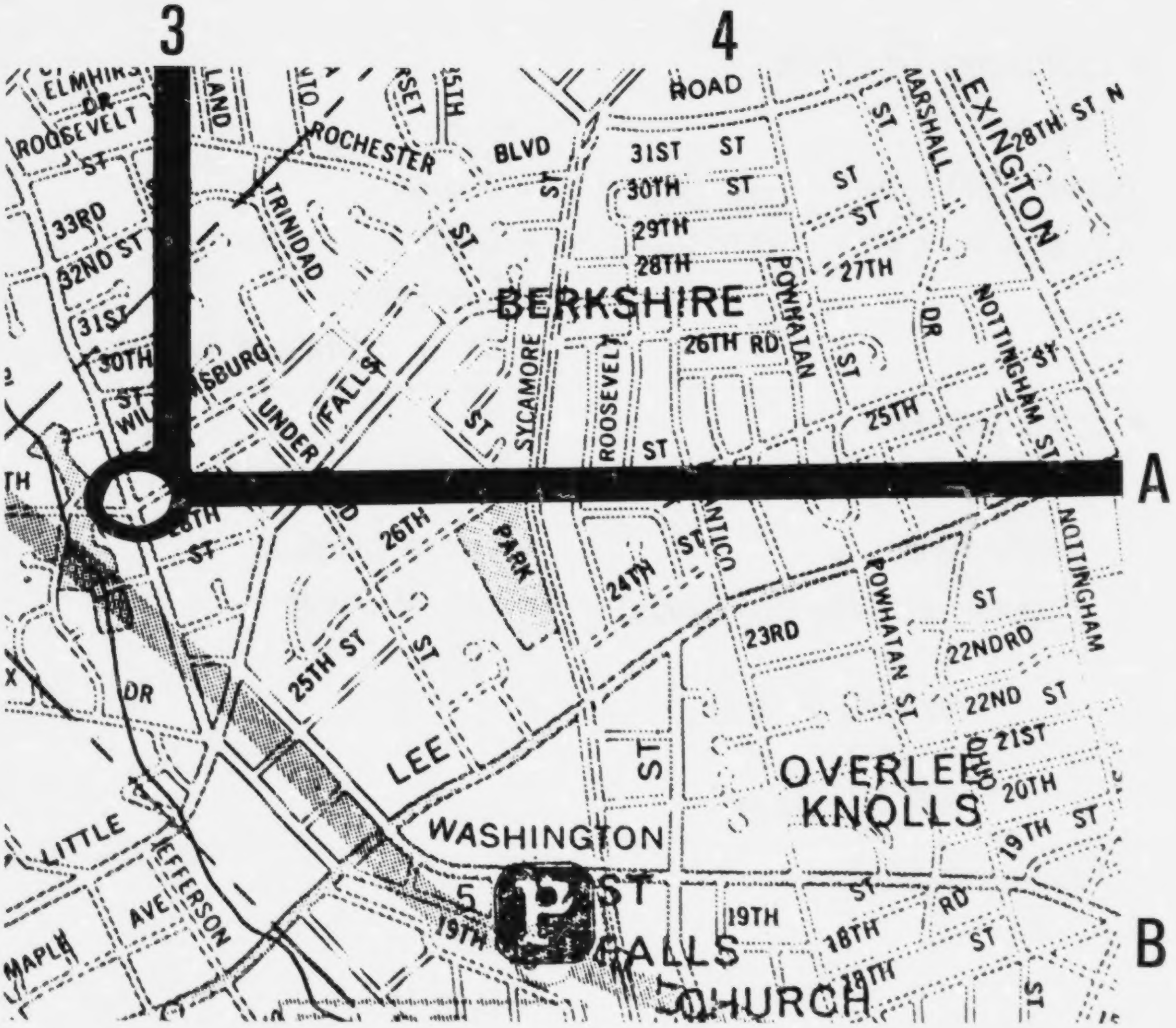
- Vehicle Condition
- Type of Driving
- Type of Driver

• *Estimating Money*

Factors

- Type of Trip
- Company Policy
- Cash or Credit for:
  - Tolls
  - Fuel
  - Food
  - Rest

Example of Grid Map


3
4
A
B
ROAD
ROOSEVELT
ROCHESTER
BLVD
31ST ST
30TH ST
29TH
28TH
27TH
33RD
32ND ST
31ST
30TH
TRINIDAD
MARSHALL
LEXINGTON
28TH ST N
BERKSHIRE
26TH RD
POWHATAN
SYCAMORE
ROOSEVELT
NOTTINGHAM ST
25TH
FALLS
26TH
PARK
24TH
25TH ST
23RD
22ND RD
22ND ST
21ST
20TH
19TH ST
LEE
OVERLEE
KNOLLS
WASHINGTON
LITTLE
JEFFERSON
AVE
MAPLE
DR
19TH
18TH
ST
FALLS
CHURCH

11TH ST.	C4
12TH PL.	C4
16TH ST. N.	C4
18TH ST. N.	C4
19TH RD. N.	B4
24TH ST.	B3
25TH ST.	B3
26TH ST.	B3
29TH ST.	A3
ABBOTT LANE	B1
ADAMS PL.	D2
ALLEN AVE.	B1
AMMANDALE RD. E.	C2

Types of Map Characteristics, Advantages/Disadvantages

Highway Maps

- Shows Entire State/Region
- Major Cities Show in Detail Insets
- Features
  - Major Routes
  - Type of Road
  - Population Centers
  - Railroad Crossing
  - Mileage

City Maps

- Detailed Street Maps
- Often Free
- Detail Very Small

Commercial Book Maps

- Series of Maps in Book
- Maps Indexed
- Streets Within Maps Indexed
- Adjacent Maps Referenced
- Large Print, Best to Use
- Expensive

Visual 13

Six Step Checklist for Plotting Trip on Map
Preparing a Trip Map

Step 1. Materials Needed

Notebook Paper, Sharpened Pencil, Road Maps Showing Present Location, Destination

Step 2. Locate Present Location and Destination

Step 3. Study Map and Select Route

Step 4. Mark Destination and Present Location on Notebook Paper

Step 5. Draw Approximate Map of Route

- Names of All Streets, Major Highways
- Direction of Travel
- Approximate Mileage

Step 6. Print in Large Letters

LESSON 2 TRIP PLANNING EXERCISE (CLASSROOM)

Overview

Time Allotted: 1 hour 30 minutes

Prerequisites: Unit 5.6, Lesson 1

Purpose:

The lesson provides the guidelines for student presentations and instructor critique of the Trip Planning Exercise assigned at the end of Lesson 1. The purpose of the Trip Planning Exercise is to provide students with a chance to apply the principles discussed in Lesson 1 and to reinforce the importance of trip planning.

Materials

Instructional Aids

None

Student Material

Completed Trip Planning Exercise, including:
- Exercise Report Form summarizing key findings
- Outline of group spokeperson's presentation to class
- map of trip plotted on notebook paper

Instructor Material

Same as Student Material to facilitate checking of the students answers

It is recommended that transparencies of the "answer" be developed including:
- List of key Federal, State, local regulations affecting trip planned
- Other key factors in selected best route
- Trip plotted on hand-drawn map according to five step procedure
- Copies of permits, fuel cards, cab cards, etc., required for the trip

Equipment

Blackboard or flipchart/grease pencil(s) or overhead projector/transparencies to aid students in making their presentations

Content

Activity or Topic	Approximate Time
1. PREPARATION FOR CLASSROOM ACTIVITY	*
2. STUDENT PRESENTATIONS	60 minutes
3. INSTRUCTOR CRITIQUE	30 minutes
	1 hour 30 minutes

---

*Done outside of class

1. PREPARATION FOR CLASSROOM ACTIVITIES

(To be completed outside of class. No time specified.)

Review of Instructions for Student Preparation

Information included in Lesson 1
Summarized here to aid instructor

Assignment of Trip Planning Exercise

Group Size

Three to five students per group

Instructions for Each Group

Select spokesman and divide labor
Meet at least twice
Use basic trip data, exercise material and trip planning aids to complete the exercise

Basic Trip Data

Vehicle--An identified school vehicle, preferably a 65-foot, 3-axle tractor pulling a 2-axle van-trailer
Cargo--Class A explosives, 76,000 lbs. GCW
Points of trip--Origin at this school to location in city in adjacent State
Time--Dispatch time 8 p.m.; trip length--at least 10 hours

Exercise Materials and Aids

Exercise Trip Report form for recording basic trip data and summarizing findings
Trip Planning Checklist summarizes key ideas from Lesson 1 as aid
Copies of pertinent Federal, State, local regulations (supplied by instructor)
Maps required by exercise (supplied by instructor)

Student Activities

Investigate Permits and Tax Requirements

Each group must investigate and report on required permits, taxes, fuel purchase requirements and identify the documents which must be secured prior to making the trip. Identification includes type of document, cost, when document must be acquired.

Compliance with Regulations

Each group must investigate and report on regulations which restrict or prohibit road or facility usage and impose any other trip planning requirements which must be considered in route selection, e.g., weight/length restrictions, prohibition or restricted use because of hazardous materials, etc.

Route Selection

Each group will apply route selection factors discussed in Lesson 1 to select route which adheres to all government regulations and is safest, most efficient route.

Students will plot map on notebook paper and list at least three key reasons for selecting its route over other reasonable alternatives.

Estimate of Time, Cost, Fuel and Other Needs

Each group will complete the exercise Report Form by estimating time, cost and fuel usage of proposed trip based on key data supplied and procedures learned in Lesson 1. The estimated time of arrival at the destination and approximate times and locations of fuel stops and rest stops will be indicated.

Each group will also list clothing, tools, and other supplies and equipment which will be required for the trip.

2. STUDENT PRESENTATIONS (60 minutes)

Instructions

- Call on each group spokesman in turn to report on the findings of his/her group to the class
- Ask for volunteers for the first presentation
  - Allow 10-15 minutes for first presentation
  - Group spokesman should:
    - Make an oral presentation organized along the lines of the four phases of information required
    - Use the blackboard, flipchart or transparencies to present key information from the Exercise Report Form and the trip map
    - Label group information presented on blackboard, flip chart or transparencies (Group A, B, C, D, etc.) and leave results intact for later discussion

- Ask for second group to volunteer
  - Try to find group with differences from first group, e.g., different route, differences in estimation of time, fuel or cost, etc.
  - Allow 10-15 minutes for second group presentation
    - Second group presentation should follow essentially same format as first
    - Instruct spokesman to explain differences and justify his group's selection

- Call on remaining groups
  - Allow five or less minutes for each remaining presentation. These presentations will likely confirm or be very similar to first two groups, e.g., "we selected the same route as Group A...."

3. INSTRUCTOR CRITIQUE (30 minutes)

Present your critique of each group's presentation to the class after all presentations have been completed

Review Exercises

Review the exercise by planning areas for each group

Identify Permit and Tax Requirements

- Critique for thoroughness, accuracy and selection of options (if any) by which each group reported on permits, taxes, etc., required
- Point out where the group did a good job and also identify deficiencies
  - Failure to identify correction registrations, trip permits, special tax requirements and other documentation must be satisfied before trip is taken

        - Failure to identify effects of reciprocity, if any, which would ease pretrip documentation
        - Failure to select best, if any, options such as the selection of 30-day permit over one-trip permit if cost is the same
        - Failure to identify additional documentation required because of hazardous materials load, such as written permission to pass through certain localities, written notification of local fire departments, documentation related to "safe havens", etc.

Compliance with Regulations

- Critique for thoroughness, accuracy and relation to route selection
- Point out any deficiencies in identifying Federal, State or local regulations which could impact selection of route
    - Federal and State hours of service regulations or safety inspections if they effect timing or selection of route
    - State and local restrictions or prohibitions which have any effect on route selection, e.g., restrictions of vehicle because of weight, length, cargo to certain time of day or certain routes--prohibition from roads, facilities such as bridges or turnpikes, specific localities because of vehicle weight, length or cargo

Route Selection

- Critique the selection of the route by the following criteria

    Safety

    - Unsafe areas and conditions should be avoided as much as possible, e.g., steep hills and curves, going through towns, back country roads, two-lane highways, roads or bridges which will not support vehicle weight, tunnels or other areas which present clearance problems

    Efficiency

    - Route selected should be the most efficient one within the bounds of regulatory and safety requirements
    - If the most direct route meets those critiera, it should have been selected
    - If there are several alternatives which appear to meet all criteria, student should then pay attention for any factors which would appear to make one route more efficient than the others (insofar as these can be discerned from the available information), e.g., speed limits, selection of major or newer super highways over secondary roads, avoidance of construction or detours, avoidance of populated areas, avoidance of "rush hour" traffic if there is viable alternative, etc.

Estimation of Time, Cost, Fuel and Other Needs

- Critique students' estimates or time, fuel, and cost for the route they selected
  - Estimates must be realistic based on average speed, vehicle characteristics, planning for fuel and rest stops, identified lcoal conditions, day vs. night time driving
  - Clothing, tools, and other equipment which students select should be based on weather and basic safety needs as discussed in Lesson 1

Discuss Solution

Present "Answer"

- Present your planned trip from beginning to end as a way of pulling together and summarizing all points in the exercise

Discuss and Resolve Differences

- Allow time to discuss and resolve any differences of opinion which remain and to answer class questions
- Resolve differences by keeping in mind that most complete trip planning and selection of best possible route is goal of exercise
- Do not get bogged down on minor points, e.g., slight differences in estimating time, cost, fuel usage, minor route deviations which can be justified
- Focus on student's ability to do a complete job of investigating needed trip documentation and applying trip planning factors with common sense and understanding
- Note that students cannot be held accountable for failing to make "best" decisions in cases where they did not have complete data

Summary of Unit 5.6

Make the following points to summarize this unit:

- Exercise just completed contained many elements of trip planning that drivers may never have to deal with, e.g., hazardous material. Still a valuable exercise because it made them apply the many trip planning variables invovled making an interstate trip with a loaded tractor-trailer.

- Trip planning skills will help on the job by avoiding the penalties for short sightedness before they take a trip, e.g., time lost because of a failure to obtain the proper permits, time lost because of unanticipated conditions such as locally restricted roads.

- All penalties for failing to plan trips properly take money out of the pocket of the driver, especially if he fails to get the load to its destination safely and on time.

UNIT 5.7
PUBLIC AND EMPLOYER RELATIONS

UNIT 5.7 PUBLIC AND EMPLOYER RELATIONS

PURPOSE

The purpose of this unit is to make students aware of their highly visible and important role in representing the trucking industry and to help them develop good public relations skills. Employee/employer relations are also discussed, including job qualifications and practice in handling job interviews.

OBJECTIVES

Performance Objectives

Students must

- exhibit courtesy to other drivers by avoiding unnecessary use of the horn, not blocking driveways and entrances, and pulling to the side of the road (when necessary) to allow faster vehicles to pass.
- interact tactfully with customers and general public by referring problems to the company.
- maintain a neat personal appearance on duty and when being interviewed for a job.
- fill out job application forms properly and be adequately prepared for job interviews.
- lend assistance to the motorists where permitted by company policy.

Knowledge Objectives

Students must know

- the direct and indirect effects of unsafe and discourteous acts upon the public's image of the employer and the trucking industry in general.
- the proper procedure for handling complaints by the general public and customers.
- job qualifications and advancement opportunities for truck drivers.
- steps in the job application process.

Attitude Objectives

Students must believe that

- as professional drivers they must be the most safe and courteous drivers on the road
- their employers' rules and regulations take precedence over any procedures taught by the school.
- discourtesy to other drivers, customers, and the general public can jeopardize employment as well as the image of the company and industry.
- retaliation for the unsafe or discourteous acts of other drivers only compounds the situation.
- the best response to unsafe or discourteous acts of other drivers is to avoid retaliation and to maximize separation from their vehicles promptly.

LESSONS

Lesson 1.	**The Driver's Role in Public Relations (Classroom)**	**1 hour 30 minutes**
Lesson 2.	**Employer Relations (Classroom)**	**2 hours 45 minutes**
		4 hours 15 minutes

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* A portion of this lesson is optional

LESSON 1 THE DRIVER'S ROLE IN PUBLIC RELATIONS (CLASSROOM)

Overview

Time Allotted: 1 hour 30 minutes

Prerequisites: Unit 1.1

Purpose:

The purpose of this lesson is to show the way in which laws and regulations related to driving are meant to protect the driver and other road users. Obeying those laws, common sense and everyday courtesy are the basic ingredients of public relations. To illustrate these facts, some of the most prevalent public relations problems are discussed along with positive acts the driver can take to enhance the image of the trucking industry.

Although only one and one half hours of classroom time is allocated to this topic, the instructor can and should reinforce the basic ideas in the lesson during on-street lessons with students.

Materials

Instructional Aids

Visuals 1-4

Student Material

Four Checklists on Public Relations, in Unit 5.7 of Student Manual

Instructor Material

Collect newspaper, magazine articles illustrating both negative and positive press toward trucking industry for discussion in class.

Content

Activity or Topic	Approximate Time
1. THE IMAGE OF THE TRUCKING INDUSTRY	10 minutes
2. CONTACT WITH THE PUBLIC	30 minutes
3. CUSTOMER RELATIONS	15 minutes
4. CLASS DISCUSSION	35 minutes
	1 hour 30 minutes

1. THE IMAGE OF THE TRUCKING INDUSTRY (10 minutes)

Image of the Trucking Industry

Visual 1 List of Traits Identifying "Good" and "Bad" Image of Truck Drivers.

Industry Subject to Many Federal and State Laws and Regulations

- Most laws designed to protect the public.
- Some laws can be detrimental to trucking industry:
  - High road use taxes.
  - Laws restricting certain vehicles from certain roads.
  - Lower speed limits for heavy vehicles.
- All laws are influenced by public's image of trucking industry.

Many Have Poor Image of Trucking Industry

- Road Hog
  - Straddling lanes
  - Driving in fast lanes up hill
  - Blocking lanes while loading or unloading
- Speeder
  - Ignoring the 55 mph limit
  - Using horn to bully through law abiding drivers
- Tailgater
  - Rolling up too close in order to maintain speed
  - Intimidating slower drivers by tailgating/blowing horn/flashing headlights
- Rough or uncouth language and/or behavior
  - Expressing anger toward other drivers
  - Accosting female drivers and pedestrians

Consequences of Poor Public Image

- Letter writing campaigns or public and media outcry against the trucking industry
- Legislation unfavorable to industry is passed, e.g., higher use taxes, road restrictions
- More difficult to make trucking profitable and/or loss of jobs
- One driver's negative performance can have widespread impact upon the whole industry

Good Image of Trucking Industry

- "Knight Of The Road" who helps out motorists in trouble
- A professional driver who knows and practices safe courteous, driving at all times

This lesson will describe ways of
- Avoiding a bad image
- Projecting a good image

2. CONTACT WITH THE PUBLIC (30 minutes)

Visual 2 Maintaining a Good Image in Driving

Maintaining a Good Image in Driving

Many areas of contact and conflict with public in which driver must be careful of his image and actions

Following the Law

- Laws meant to protect driver and public
- Obey all regulations
  - Projects image of law abiding professional driver
  - Cuts down on incidents that make life more difficult for your fellow drivers, the industry and you

Maintaining a Good Appearance

- The Driver
  - Clean and neat appearance projects good professional type image - gains respect
  - Staying in top physical, mental and emotional shape is professional driver's responsibility
  - Consequences of not staying in shape: more likely to be involved in arguments, in accidents or near misses, poor image results every time

- The Vehicle
  - Good pre-trip might prevent accident or breakdown which gives image of unsafe industry
  - Clean, well maintained vehicle projects good safety image
  - Dirty vehicle in need of repair, unsafe looking (cargo falling out), flapping tarps, dragging chains/rope, all project bad image

Sharing the Road

Most areas of conflict with public occur when sharing the road

Actions that cause public resentment:

- Space Related
  - Following too closely
  - Driving in packs that prevent passing

Speed Related

- Speeding trucks
- Cutting in and out of traffic

Going Up Hill

- Holding up traffic on hills by attempting to pass another truck without enough speed. Result: two trucks block traffic
- Failure to
  - Keep well to the right
  - Pull off the road if possible to allow following lines to pass you

Passing

- No signals
- "Cutting off" other drivers

Intersection Related

- Many truckers try to bluff their way through intersections because of large size of truck
- Showing anger toward drivers who don't leave enough room for tractor-trailer to turn
- Often "jump" the light on a left turn
  - Most motorists don't understand how much room tractor-trailer needs to make turn
  - Be courteous and patient and wait for that space

Headlight Related

- Failure to dim lights when meeting or following
- High beams of trucks more annoying than lights of cars
- "Flashing" headlights to force slower driver to move over

Noise Related

- Particular problem in cities and towns
- Nonemergency use of air horn
- Loud braking
- Improper or damaged muffler/smoking exhaust

Stopping and Parking

- Pulling up beside another trucker to chat, thus blocking/impeding traffic flow
- Double parking to make delivery

Visual 3 Maintaining a Good Image in Public Contact

Maintaining a Good Image in Public Contact

While Driving

- Car drivers do many unsafe things that annoy truckers
  - Avoid the temptation to retaliate
    - Don't yell or make obscene gestures to car drivers who annoy you
    - Avoid use of uncouth or profane lauguage
  - Offensive conduct can result in job loss
    - Motorists often report incidents to company
    - Most carriers can identify driver by time, place and vehicle, e.g., motorists report license tag numbers

- Act like a professional
  - Truck driver is 100,000-miles-a year professional
  - Must make allowances for 10,000-mile a year "amateur"

On-Duty

- Be courteous, polite, helpful
- Maintain a good appearance
- Avoid arguments and (even if the other guy was wrong)
- Be a good representative of the company

Off-Duty

- Can be identified by appearance or uniform
- Avoid loud, rowdy behavior in public places e.g., restaurants, gives bad image
- These actions confirm image of truck driver as uncouth, unintelligent

Rendering Assistance

- Helping others create the good image desired
- Render as much assistance as possible within the limits of company policy
- Learn first aid to give assistance at accident scenes
- Stop and find out if stranded or broken down motorists need help
  - Use C.B. radio to assist
  - Communicate ahead to get help
  - Communicate to others about bad weather, accidents or traffic conditions
- Be helpful in giving directions to lost motorists
- Treat the other drivers on the road as you would expect your family to be treated

Stand up for Trucking Industry

- Only a minority of truckers create the bad image
  - Don't encourage negative actions of others by showing approval, e.g., laughing, applauding, etc.
- Keep that in mind and speak up if involved with someone who is against truckers
- Remember: The truck driver's actions and appearance do most of the speaking for the industry and that just one negative act can undo literally hundreds of positive acts

Consequences of Bad Public Relations

- To the industry: restrictive laws which hurt financially and make the job harder to do
- To your company: A bad name and perhaps loss of business, lawsuits
- To the driver:
  - Gains ill will of other drivers
  - Gets poor work record
  - Could lose job and have a hard time getting another one

Recap

Trucking advertising campaigns spend millions informing public of safe record and importance to public, e.g., "most of the goods you buy at a store were brought to you by a truck".
One driver's negative or careless actions can undo thousands of dollars of public relations ads on tv, radio, etc.
Follow all company rules and policies.
Stay in shape, be professional and maintain vehicle.
Share the road safely; having a large vehicle doesn't entitle driver to larger share of road.
Avoid offensive behavior.
Render assistance when possible.

NOTE: Use collected news articles to emphasize these points.

3. CUSTOMER RELATIONS (15 minutes)

NOTE: Key points on dealing with customer about Over, Short and Damage problems discussed in Unit 5.2.

Visual 4 Tips for Good Customer Relations

Driver is His Company's Visible Contact With Customer

How he acts can lose or gain business
Isn't hard to make extra effort to do a good job
    Appearance is important
    First impressions count
Driver projects company image
    All of the factors affecting public image take on added significance when "public" is a customer
    Can be a factor in getting future business, e.g., sloppy, careless driver and vehicle projects image of sloppy, careless carrier

Assisting in Gaining Business

Always be on lookout for freight the customer is shipping that your employer can handle
Ask supervisor if you can ask customer for this additional freight too
More freight = more business = more need for drivers = job security

Follow Company Rules

    In cargo and freight documentation handling
    Procedures for dealing with customer
    Procedures for dealing with frieght problems
    Consequence of not following rules: Get bad reputation, may lose job and have difficulty getting another one

Display Positive Attitude

Be prompt for pickup or delivery
Be courteous
Don't argue or let yourself be provoked
Be polite, honest and helpful at all times
Always thank the customer for his business

Three examples of driver/customer relations:

EXAMPLE 1: Careless attitude, appearance and actions
Result: Will lose business

EXAMPLE 2: Minimal care and just follows the rules
Result: Might lose business to more enthusiastic competitor

EXAMPLE 3: Positive, helpful and enthusiastic driver. Shows he can do a good job, is always prompt and wants more freight.
Result: Will keep business and might get more

4. CLASS DISCUSSION (35 minutes)

Hold a short class discussion to reinforce the ideas presented in this lesson (use the newspaper/magazine articles, accident reports and other material collected to stimulate student thinking).

Ask students to cite incidents they have observed or heard that relate to driver and public/customer relations.

Discuss incidents in each of the following categories and summarize results on blackboard:
- Driver appearance
- Driving conflicts with the public
- Driver dealings directly with public or customer
- Identifiable bad conduct when on duty - not driving and/or off duty
- Positive acts to aid public or customer

After obtaining a few incidents in each category (if possible), discuss the following questions:
- How did you feel about truck drivers when you saw or heard about the incident?
- How could this type of behavior hurt the individual, the trucking industry, the truck driver's pocketbook?
  - That will cause the shipper to refuse to ship by truck anymore, put freight on other modes of transportation, or at the very least refuse to ship via your company anymore. Possible impact on number of jobs lost, in the industry, and in your company.
- How could this type of behavior help the individual, the trucking industry, the truck driver's pocketbook?

List of Traits Identifying Good and Bad Image of Truck Driver

The Driver and His Vehicle Are the Image of the Trucking Industry to the Public.

Avoid a Bad Image!

- Bad Image
  - Road Hog
  - Speeder
  - Tailgater
  - Rough or Uncouth Language/Behavior
- Results
  - Public Complains
  - Letters to Lawmakers
  - Laws Restrict Road Use
  - Lower Speeds
  - Higher Use Taxes
  - Tougher to Make a Living

Maintain a Good Image!

- Good Image
  - "Knight Of The Road"
  - Safe, Courteous, Professional Driver
- Results
  - Benefits Trucking Industry, Your Company, Your Family and You!!

Maintaining a Good Image in Driving

Follow the Law:

- Do
  - Obey All Federal/State Laws
  - Create Image of Law Abiding Professional
- Don't
  - Disobey Laws

Stay in Shape:

- You
  - Clean, Neat Image and in Good Physical, Mental Shape
- Your Vehicle
  - Clean, Well Maintained and Safe

Share the Road:

- Watch for Bad Habits in Sharing the Road With Public
- Your Bad Driving Can Result in Public Resentment
- Watch Out for Areas of Conflict With Public
  - Space
  - Speed
  - Up Hills
  - Passing
  - Intersections
  - Use of Horn/Loud Braking Noise
  - Use of Headlights
  - Going Through Towns/Cities
  - Exhaust Noise/Smoke
  - Stopping and Parking

Maintaining a Good Image in Public Contact

While Driving:

- Don't Retaliate
- Act Like a Professional

On Duty:

- Be Courteous
- Maintain Good Appearance
- Avoid Arguments
- Be a Good Company Representative

Off Duty:

- Avoid Loud, Rowdy Behavior

Rendering Assistance:

- Help When Possible
- Learn First Aid
- Help Stranded Motorists
- Use CB to Help Others

Tips for Good Customer Relations

- Follow Company Procedures
- Don't Argue or Lose Your Temper
- Be Courteous
- Be Polite, Honest, and Helpful
- Always Thank the Customer

If You Are Careless in Appearance and Actions–

YOU MIGHT LOSE THE CUSTOMER

If You Give That Extra Care–

YOU MIGHT GET MORE BUSINESS!

REMEMBER:

Driver Has More Contact With Customers
Than Any Other Person in the Company

LESSON 2 EMPLOYER RELATIONS (CLASSROOM)

Overview

Time Allotted: 2 hours 45 minutes

Prerequisites: Unit 5.7, Lesson 1

Purpose:

The purpose of this lesson is to help student prepare to look for jobs in the trucking industry. The lesson stresses the proper attitude for success in finding and holding a job and includes several practical exercises, including practice in job interviewing.

Materials

Instructional Aids

Visuals 1 - 5

Student Material

Copy of the Federal Motor Carrier Safety Regulations
Sample job application form. in Unit 5.7 of Student Manual
Guidelines for taking part in job interview, in Unit 5.7 of Student Manual
Practical exercise: Job Interviewing (Student instructions), in Unit 5.7 of Student Manual

Instructor Material

Copy of the Federal Motor Carrier Safety Regulations
Information about local trucking firms for class discussion and practical exercises

Content

Activity or Topic	Approximate Time
1. BASIC JOB REQUIREMENTS	35 minutes
2. APPLYING FOR A JOB	25 minutes
3. PRACTICAL EXERCISES	60 minutes
4. GUEST LECTURER FROM LOCAL TRUCKING COMPANY	45 minutes*
	2 hours 45 minutes

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* Optional

1. BASIC JOB REQUIREMENTS (35 minutes)

Visual 1 Basic Federal Qualifications

General Qualifications for Job as Interstate Tractor-Trailer Operator

Meet requirements of Federal law, U.S. D.O.T. (Bureau of Motor Carrier Safety) Federal Motor Carrier Safety Regulations
Meet employers needs and policies
Have general knowledge, attitudes and interests that suit trucking industry

Requirements of Federal Law (U.S.D.O.T. Regulations, FMCSR 391.11 and Related Parts, Paraphrased)

Background Qualifications

At least 21 years old
Physically qualified (FMCSR 391.41, see also Unit 5.5)
Valid chauffeurs license for home State

Skills Required

Can read, speak enough English to understand traffic signs, signals and fill out required reports
Able to safely operate vehicle via training and/or experience
Familiar with methods and procedures for securing cargo on vehicle will operate
Can determine if cargo properly located, distributed and secured on vehicle will operate

Tests and Applications Required

Fill out job application that meets requirements of D.O.T.
    Carrier will supply application meeting information requirements of 391.21
Complete driver road test successfully and be issued certificate of test (391.31)
Complete written examination successfully on FMCSR (393.9)
Prospective employer required to conduct background investigation for previous three years of driver's record

Disqualifications

Must not be disqualified under rules (391.15) for any of following:
    Loss of license
    Operating motor vehicle under influence of alcohol, amphetamines, narcotics
    Criminal possession of amphetamines, narcotics
    Leaving scene of accident which resulted in injury or death
    Felony involving use of motor vehicle

NOTE: Refer students to FMCSR, Part 391. This material should be assigned for reading after class since it includes the details of the basic qualifications discussed above.

Visual 2 General Job Qualifications

General Job Qualifications

Knowledge

Applicant should know:
- Various types of vehicles used by the trucking industry, systems and components
- Trucking industry nomenclature
- Paper work required by trucking industry
- State and local traffic regulations and laws, including basic hazardous materials requirements

Skill

Ability to drive safely or learn to drive employer vehicles safely
Ability to handle cargo or learn to handle cargo

Attitude and Interests

Applicant should have
- Positive attitude towards trucking industry, prospective job and employer
- Willingness to follow company policies and requirements
  - Hours of work
  - Safety rules
  - Public relations

Personality that suits the industry and job
- High job interest
- Mature and responsible
- Good safety attitude
- Enthusiastic

Recap

Three keys to getting and keeping job as professional tractor-trailer operator
- Know and meet Federal requirements
- Have knowledge and skill necessary to be asset to employee
- Have personality and attitude suited to trucking industry
- Be honest, sincere, willing to work and desire to be professional

Visual 3 Company Policies

Company Policy

Purpose and Importance

Each carrier that hires driver has own policies and ways of doing things
- Must conform to all State and Federal regulations

- Company policy takes precedence over procedures learned in school, e.g, some companies do not allow drivers to adjust brakes, change lights, etc.
- Find out what is expected and follow it, e.g., during job interview

What Company Policies Cover

- Hours of work and benefits
- Basic work rules
  - Type of supervision
  - Requirements for advancement
  - Discipline policy including rules for dismissal
- Safety rules
  - Requirements for training and safety meetings
  - Safe driving rules specific to company
  - Safe cargo handling rules specific to company
- Vehicle inspection and maintenance requirements
  - What is expected of driver
  - Forms to fill out and instructions
- Rules for trips
  - Driving rules for fuel economy
  - Where and when driver can make fuel or rest stops
  - How driver pays for fuel, food
    - Reimbursement policy and procedures
    - Use of credit cards, cash advances
- Relations with public and customers
  - Dress codes
  - Conduct requirements

What Companies Cannot Require of Driver

- Cannot require driver to work in violation of State/Federal/local regulations
  - Must provide a safe place to work
  - Cannot require or permit driver to operate unsafe vehicle
  - Cannot require or permit driver to violate hours of service regulations

Why Driver Must Know About Company policy

- More knowledge in advance easier it is to get job interview and do well during interview
- Applicants should determine in advance, if possible
  - If they have ability the employer needs
  - If additional training is available and they are willing to take it
  - If it is the kind of place they want to work
  - If hours, pay, working conditions meet their needs
- Success more likely if drivers match company needs and vice versa
- Must learn policies in depth and comply with them after getting job

Attitudes Expected from Job Applicant and Worker

- Attitude as important as knowledge of company requirements
- Four key attitudes companies look for and expect
  - Cooperative Attitude
    - Cannot be successful if driving is only skill
    - Must be able and willing to work with and get along with supervisory dispatchers, co-drivers, co-workers, customers and public
  - Loyalty
    - Disloyal attitudes and acts hurt company and eventually worker
    - Don't knock employer, he pays driver and deserves loyalty
  - Dependabilty
    - Required in fast moving trucking industry
    - If driver doesn't show up, is late, or not in condition to drive someone else has to pull his load and whole company suffers
  - Safety Mindedness
    - Employers pay heavy cost for accidents and injuries
    - Safety starts with individual employees action and attitude
      - Must have good attitude and safety record
  - Honesty
    - Trucking company entrusted with valuable freight from other companies
    - It's the driver's job to protect it

Recap

- Know as much about company policies as possible before applying for job
- Learn policies in depth when on the job
  - Be available and willing to follow them
  - Combine knowledge with attitude needed to be successful

Visual 4 Summary of Job Opportunities

Opportunities for Advancement

Types of Driving Jobs

- Local pickup and delivery-intrastate
  - Many drivers start at local level
  - Job requirements
    - Pick up freight in a.m.
    - Make local deliveries and pickups all day according to dispatch instructions and shipping papers
    - Return to freight terminal with pickups in p.m.
  - Can gain valuable experience for higher paying over the road jobs

- Over the road jobs
    - Highest paying and require most skills
        - Public carriers
            - Truckers who haul goods for others, e.g., freight companies, moving companies
        - Private carriers
            - Drivers for fleets operated by chain stores, manufacturers
            - May demand other experience and skill, e.g., salesmanship, ability to operate machines they sell

Advancement

- Most driving jobs start at the bottom, e.g., yard jockey, freight handler, truck washer, driving straight trucks for intrastate company.
    - Do a good job, show enthusiasm, learn all you can.
    - Wait for chance to get driving job.
    - First job will probably be straight truck.
    - Gain experience and good record to become eligible for higher paying over-the-road job.

Public Carriers

- Can also start as freight handler
- Move up to yard jockey, e.g, spotting trailers for loading, unloading
- Move up to city pickup and delivery driver
- Advance to line haul driving job when skill and opportunity exists
    - Start on "extra board" which is list of drivers who substitute for regular drivers
    - Move up to regular runs
    - May only get occasional work at first

Private Carrier

- Require a lot of experience and skill to get job
- Often requires special skills, such as driver-salesman
- Company may train for sales skills required
- Driver will start with least desirable runs and advance to better runs, e.g., best routes, better hours, more valuable cargo

Career Opportunities for Drivers

- Most advancement is within occupation
    - More money by type of run and cargo
    - Pay increases with seniority and more complex and responsible duties, e.g., longer hauls, more valuable or hazardous materials type cargo
- Some promotion to other jobs in industry
    - In freight operations, chance to become dispatcher, terminal manager

For private fleets can advance to supervisory positions such as driver trainer
  - Responsible for breaking in new drivers
  - Monitor performance of company drivers by accompanying them on trip to observe safe driving and fuel efficiency habits

2. APPLYING FOR A JOB (25 minutes)

Basic Job Application Process

Intrastate--few rules and regulations
Interstate basic process essentially the same for all companies
  - Specific procedures will vary from company to company
  - All must adhere to FMCSR job application and hiring requirements

Steps in the Job Application Process

The job application process for tractor-trailer drivers involves the following:
  - Application form
  - Reference checks
  - Job interview
  - Tests

Application Form

Information tells if applicant meets basic job requirements
Also first impression to potential employer
  - Can impress if it is done well
  - Should be neat, complete accurate and honest

Reference Checks

Have names and addresses of previous employers
  - Always leave a good impression with previous employers to get good references
  - Even if unhappy with previous jobs, don't get a bad reputation by goofing off, being undependable
  - Have copy of driving record

Visual 5 Job Interviewing Tips

The Job Interview

NOTE: Refer students to "Job Interviewing Checklist" in Student Manual.

Importance

- Next to road test, most important part of job application process
- Chance for applicant to sell himself
- Three key rules for good job interview
  - Be prepared
  - Know how to act during interview
  - End the interview well

Preparing for the Interview

- Learn all you can about the company
  - Be prepared to ask intelligent questions, e.g., what are company policies, chances for training, advancement?
  - Know abilities and limitations, e.g., can you drive kind of vehicle and handle cargo, will you need extra training?
- Make sure you have all necessary paperwork on hand
  - Chauffeuers license
  - Certifications
  - Letters of reference
- Be ready for the interview
  - Be on time or a little early
  - Visit location a day or two early so you don't get lost or delayed
  - Be neatly dressed but be dressed for work (in case you are asked to take road test)

How to Act During the Interview

- Sell yourself
  - Present qualifications and experiences honestly when asked
  - Don't lie or brag or try too hard to impress
  - Be sure interviewer knows what you have done successfully in the past
  - Relate your job qualifications and experiences to company needs
- Don't worry about being nervous
  - Most people are a little nervous during a job interview
  - Try to be yourself and relax as much as possible
  - If you don't get this job, consider this as good interviewing practice for the next one
- Keep a positive attitude about the job
  - Attitude often is the difference in job selection between two equally qualified candidates
  - Show that you are willing, honest, enthusiastic and genuinely interested in the job and the company
- Be responsive to questions asked
  - Interviewer wants to find out about and will ask questions about hobbies, interests (also to put you at ease)
  - Answer questions, but don't volunteer unnecessary information
  - Try to keep conversation focused on job and why you are suited for it
- Ask questions about company
  - Don't wait until you get job and find out you don't like conditions
  - Interviewer should volunteer information about conditions
  - If not, they expect you to ask

- Be willing to settle for less than job goal
    - If company desirable place to work, be willing to start as helper or dockworker, if chance to move up to good driving position
- Be polite and courteous throughout interview
- Don't smoke unless invited

End the Interview Well

- Thank the interviewer for his time and interest
- Express again interest in company and job and how you can help
- Find out procedure for being informed of decision

Tests

Be well rested and prepared to take written and road tests

Written Tests

- Study key materials about regulations and safe driving practices
    - State Drivers Handbook, especially parts specific to trucks
    - FMCSR regulations
- Review safe driving information and procedures learned in school

Road Test

- Most important part of job application procedure
- Need certificate for interstate driving
    - Company will issue if qualified
- Be prepared for test which might include:
    - Pretrip inspection
    - Coupling and uncoupling
    - Backing
    - Parking
    - Driving in traffic
- Be dressed and ready for test, have gloves and logbook in your glove compartment
- Don't risk safety if not familiar with vehicle
- Ask about unfamiliar parts or accessories
- If its rig not qualified to drive, don't do it, e.g., doubles, tankers

Physical Examination

- Must have a current, valid doctor's certificate of physical examination showing he meets minimum qualifications
- If not, must pass physical
    - Be prepared for company to give its own physical for their protection

Note: See also, Unit 5.5.

3. PRACTICAL EXERCISES (60 minutes)

There are two practical exercises which are aimed at helping students prepare for the job market. Students will be asked to fill out a sample job application form for your review and critique. This can be done in class or as a homework assignment. The second exercise involves practice interviewing for a job which should be done in class.

Practical Exercise--Filling Out a Job Application Form

Instructions

Instruct students to fill out the "Job Application Form" which is included in Unit 5.7 of their Student Manual.
Can be filled out now or as a part of homework assignment.
Answer student questions about "Job Application Form" and review completed work to offer further assistance.
Critique completed Job Appliction forms on individual basis.
Pay particular attention to
    Neatness
    Completeness
    Understanding of required information

Practical Exercise--Practice Job Interviewing

Select one or more students (as time permits) to take turns "interviewing for a job."

Instructor

Instructor plays the role of job interviewer at Brown Trucking Company

Role information is specified below

Information for Brown Trucking Company for Instructors Role

You are the owner of a small trucking company, the Brown Trucking Company. It is a small operation, so you will interview the job candidate and give him the road test.

Type of company: For-hire common carrier of general commodities, dry freight.
Type of operation: Irregular runs. Long hauls.
Vehicles: Diesel tractors to pick up and haul trailers carrying various nonhazardous commodities.

You need a relief driver to fill in for drivers who are sick or on vacation. You have been short drivers also because of added runs and because some of your drivers did not have enough hours of service to make the run. You are looking for a dependable tractor-trailer driver. His hours will be flexible and will also work on the dock and as a yard jockey. Mainly he has to be dependable and willing to take last minute trips.

The applicant can move up to a full-time position when a spot opens. But your regular crew has been on for a long time, so you can't promise anything right now. He will be at the bottom of your pay structure until he gets a full-time driving position.

Students

Students play role of interviewee.

(Role information is specified in Student Manual, Unit 5.7 and reprinted below for instructor's convenience.)

In this exercise, you will be called upon to interview for a job at the Brown Trucking Company in response to an ad in the newspaper.

The ad called for a "dependable tractor-trailer operator" and did not specify experience or other duties.

You are looking for a full-time job and know very little about the company except that it is a small operation and you will be interviewed by the owner, Mr. Brown. It is a general commodities, dry freight operation.

Prepare for the interview by reviewing the "Job Interviewing Checklist" in your Student Manual.

Use your own qualifications and experience in your discussion with Mr. Brown about a job in his company.

(End of Student Manual Reprint)

Conducting the Exercise

Instruct students to review information about job interview which identifies needs of Brown Trucking Company and the "Job Interviewing Checklist" to prepare for the interview.

Call on volunteers to take part in interview for practice.

Conduct brief 5-10 minute interview(s) with as many students as possible.

Critique

Ask other students to critique performance of student who took part in the interview using the Job Interviewing Checklist as guideline.

Offer your own critique using same guidelines.

Continue exercise with as many students as time permits.

4. GUEST LECTURER FROM LOCAL TRUCKING COMPANY (45 minutes)

This part of the training is optional

Preparation

If possible, arrange for a representative of a local trucking firm to discuss job opportunities and answer student questions, or get someone from your State Trucking Association.

Try to get a representative who has the responsibility of selecting and/or training new employees, or who has such knowledge at the association level.

Ask the representative to be prepared to make a brief presentation (8-12 minutes) about:

Nature of his company, e.g., type of vehicles, cargo and runs.
Type of entry level jobs and requirements.
Process of selecting, hiring and training new employees.
Potential and requirements for advancement, e.g., kinds of skills and attitudes which help the employee get ahead.

Conduct Class Discussion

Introduce guest lecturer
Guest lecturer makes brief presentation
Open the floor for student questions about job opportunities, process of hiring, training and advancement on the job

Visual 1

Job Requirements Under Federal Motor Carrier Safety Regulations

- Background Qualifications
  - At Least 21 Years Old
  - Physically Qualified
  - Valid Chauffeur's License

- Skills Required
  - Ability to Read and Speak English
  - Ability to Operate Vehicle Safely
  - Ability to Load, Distribute and Secure Cargo

- Tests and Applications Required
  - Fill Out Job Application
  - Complete Road Test
  - Complete Written Test
  - Furnish Short Driver Record

- Disqualifications
  - Loss of License
  - Operating Under the Influence
  - Criminal Possession of Drugs
  - Leaving Scene of an Accident
  - Felony Involving Use of Motor Vehicle

Visual 2

General Job Qualifications

- Knowledge
    - Vehicle Systems and Components
    - Trucking Nomenclature
    - Paperwork
    - Regulations and Laws
- Skill
    - Drive Safely
    - Handle Cargo Properly
- Attitudes and Interests
    - Positive Attitude Toward Industry and Employer
    - Willingness to Follow Company Policies and Requirements
    - Suitable Personality

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Visual 3

Company Policies and Expectations

Policies–Cover:

- Hours of Work and Benefits
- Basic Work Rules
- Safety Rules
- Vehicle Inspection and Maintenance Requirements
- Rules for Trips
- Public and Customer Relations

Expectations

- Cooperative Attitude
- Loyalty
- Dependability
- Safety Mindedness
- Honesty

Visual 4

Summary of Job Opportunities

	Interstate or Foreign Commerce		Intrastate
	Private Carriers	For Hire Carriers	
Qualifications	25 Years Old Experienced and Stable Because of High Insurance Costs	25 Years Old Experienced and Stable Because of High Insurance Costs	Little Experience Low Pay Scale
Training	Company Orientation Experienced Driver to Check You Out	Some Excellent OJT; Others Little or No Training	Little If Any Training
Advancement	Move From Least to Most Desirable Runs	May Start on the Dock Work on "Extra Board" Up to Steady Runs	Start With Straight Trucks, Move Up to Better Trucks, Better Companies
Promotion	Driver-Trainers Safety Supervisors Dispatcher Driver Supervisor	Driver-Trainers Safety Supervisors Dispatcher Driver Supervisor	Experience to Get Better Paying Interstate Over-the-Road Jobs

Job Interviewing Tips

Before the Interview

- Find Out About the Company–Its Policies and Vehicles
- Know Your Own Limitations and Abilities
  - Do You Match?
  - Do You Need More Training?
- Get Ready for Written and Road Tests
- Bring All Required Paperwork (Driver's License, Driving Record, Names, Addresses of Previous Employers, Copy of Physical Exam, Logbook)
- Dress Neatly but Be Ready for Road Test or Work
- Be on Time or a Little Early

During the Interview

- Try to Relax and Be Yourself
- Sell Yourself–But Don't Boast or Brag
- Keep a Positive Attitude
- Respond to Questions Asked Honestly
- Be Courteous, Polite and Friendly
- Don't Smoke Unless You Are Invited to
- Thank the Interviewer for His/Her Time